INSTRUCTION MANUAL
FOR
RENA MODEL

DA608

DIRECT ADDRESS INKJET PRINTER

Part # : M-3028
Revision Date 3/15/04

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Technical specifications may change due to design advances.
The data stated are nominal values only.

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Important notes on safety

PLEASE READ THESE NOTES CAREFULLY.

Keep these instructions to hand for later use.

Be sure to observe all hints and warning messages on instruments.

Installing the printer

- When installing the printer, make sure that it stands on a level and secure base. Take great care when handling the printer to avoid injury to persons.
- Protect the printer from moisture.

Electronic hazards

- When connecting the printer to the power supply, be sure to note the connection data on the letterplate (serial number plate).
- Check the voltage setting on the printer's power input module.
- The power terminal socket must be supplied with a grounding conductor for reasons of electrical safety.
- The printer has a dual fuse! Even after a fuse has blown, electrical parts in the printer may continue to be under voltage.
- Run the power cable so that no-one can trip over it. Make sure that nothing is placed on the cable.
- If the printer is not to be used for a longer period, disconnect it from the power source. This will avoid damage in the event of voltage surges.
- Never open the printer. For reasons of electrical safety, this may be done only by authorized service personnel.

Operating safety

- Never touch the internal parts of the printer while it is running !
- To avoid damage to the printer, use only accessories that have been approved by the manufacturer.

Cleaning the printer

- Disconnect the printer from the power source before cleaning it.
- For cleaning, never use liquid or aerosol cleaners, but only a damp cloth.

Let your Rena dealer check the printer !

DISCONNECT THE PRINTER FROM THE POWER SOURCE IF !

- The power cable or plug/socket are damaged.
- Liquid has penetrated the printer.
- The printer was exposed to moisture.
- If the printer does not operate as described in the user guide or if you cannot improve this situation by following the guide.
- The printer has been dropped and/or the casing is damaged.
- If the printer shows clear signs of a fault.

Replacement parts

- In the event of any repairs, only original replacement parts from the manufacturer may be used.

For all questions relating to service and repair, please contact your Rena dealer. This ensures optimum operation of your printer.

1. Introduction 1.1

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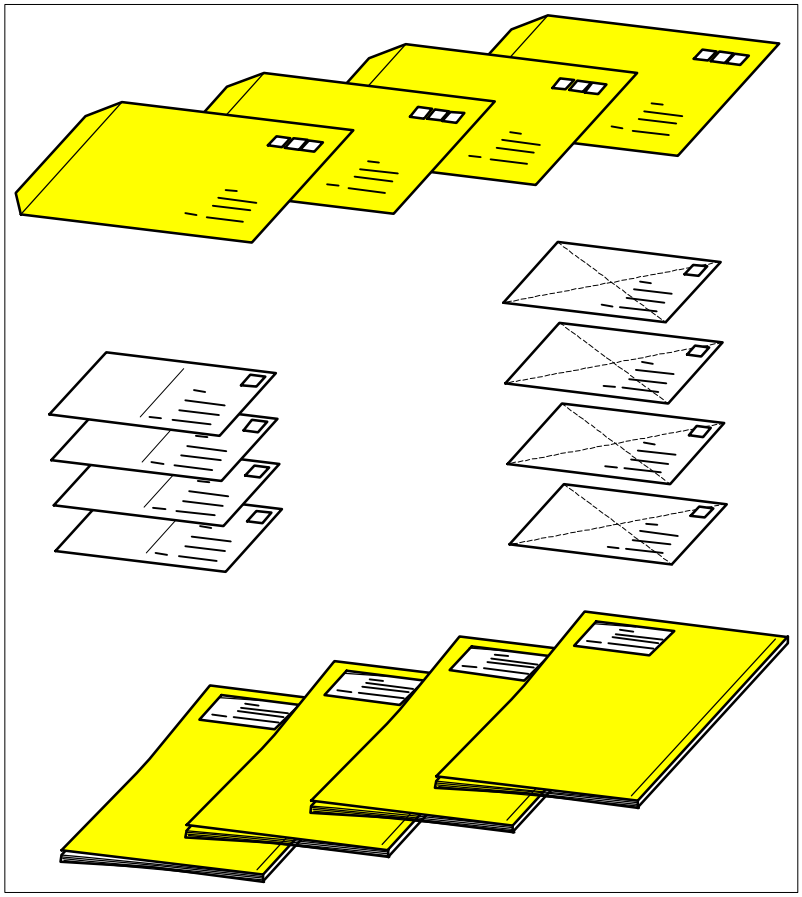
1. Introduction

What can the DA608 address printer do?

The DA608 address printer is an ink-jet printer ensuring a high-quality printout. It prints addresses at the correct positions on envelopes, cards, brochures, magazines and other documents up to 6 mm in thickness.

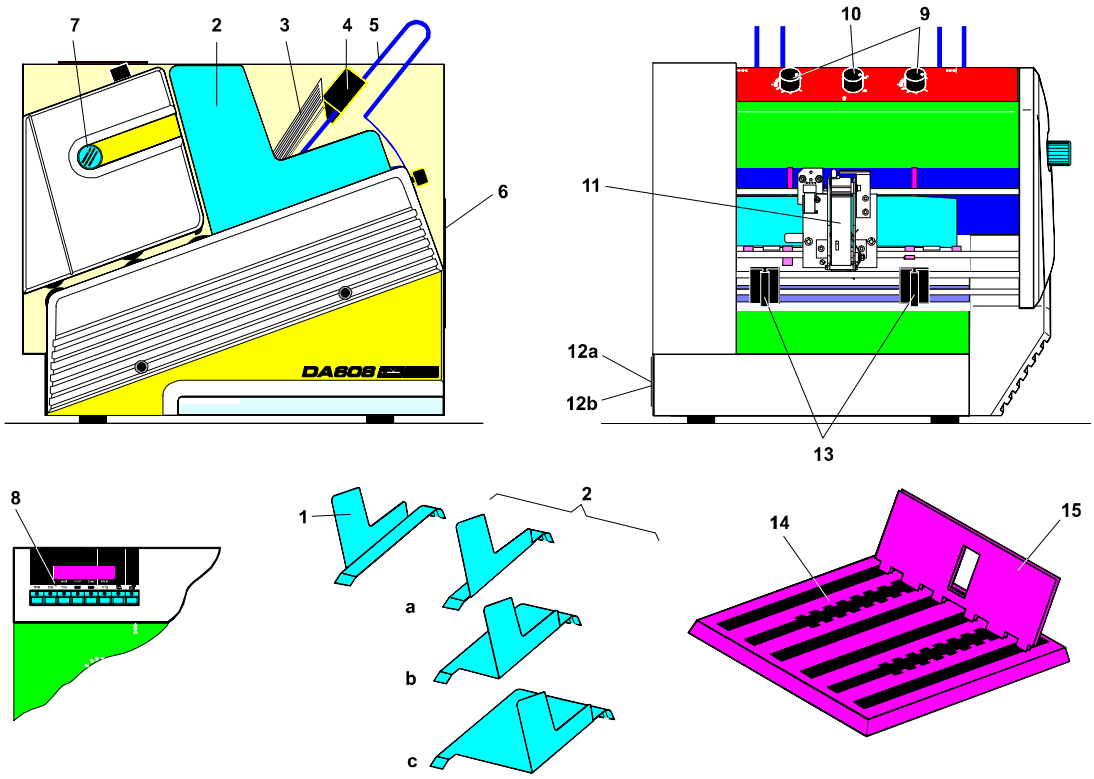


A total of thirteen installed fonts lets you choose from a large selection of different typefaces.

The width of the print area is 230 mm.

Printing is performed with a standard exchangeable ink cartridge.

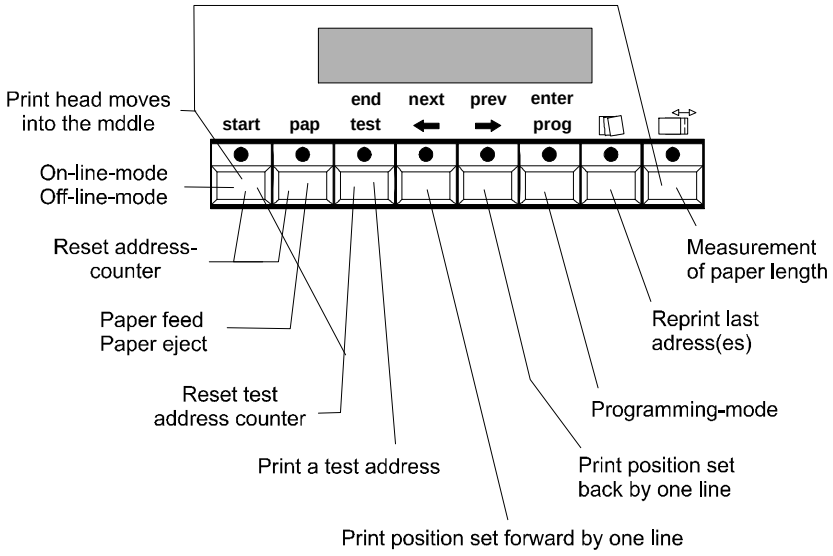
Presenting the DA608 address printer



1 Inner feed bracket (side guide) (R0326.0.101)
2 Outer feed brackets (side guides)
a narrow (R0326.0.102)
b* medium (R0326.0.100)
c* wide (R0326.0.113)
* may be replaced by intermediate guide (R0326.0.245)
3 Paper for printing addresses
4 Guide block
5 Elevation guide
6 Power input module with power switch for printers S/N 1- 143. Voltage selectable. Power switch for printers S/N 201 and higher.
7 Paper thickness adjustment knob
8 Control panel (see next page)
9 Fine adjustment knobs for sheet separation adjustment
10 Locking knob for sheet separation adjustment
11 Inkjet cartridge
12a Parallel interface (36 pin)
12b Serial interface (9 pin)
13 Adjustable pressure rollers (exit rollers)
14 Paper stacker (catch tray) (R0305.1.037)
15 Back stop (R0305.0.126)

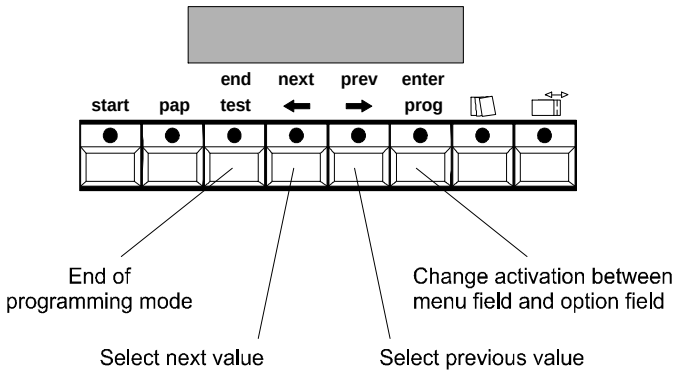
Control panel

In off-line mode



In programming mode

In programming mode, menu settings are made on the printer. In this mode, the upper line of key descriptors applies (END, NEXT, PREV, ENTER)



In combination with the power switch

Key combination	Meaning
Power on + Prog	Reset to default setting
Power on + Start	HexDump

Brief guide

The table shown below lists the operating steps in correct sequence. It allows you to perform a test print quickly without any prior knowledge. You can find the detailed description of the various operating steps on the pages shown in the right-hand column.

Operating step described on	Page
- Connecting the printer	2.3
- Switching the printer on	2.4
- Inserting copy for printing	3.1
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2. Operation

These instructions apply only to printers No. 1 – 143 !!
For printers numbered 201 and upwards, see “Connecting the printer“ on page 2.3 !

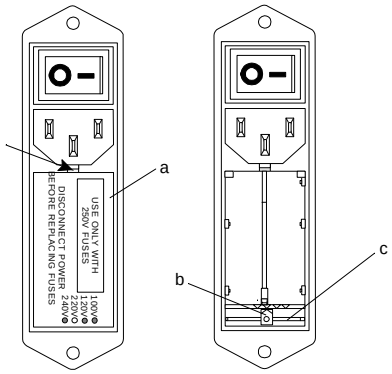
Power connection

CAUTION !
Before you plug the power cable into the right-hand panel of the printer, check that the voltage is correctly set on the power input module.

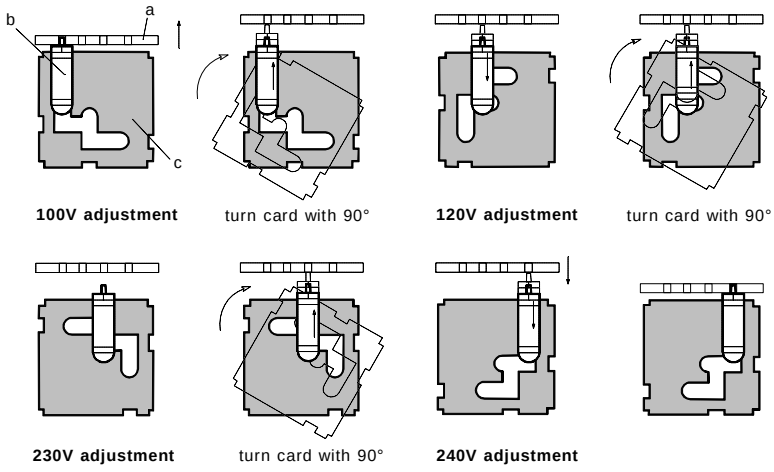
If the setting is correct, continue to the subsection “Power cable” on the page after the next.

Voltage selection

- **Disconnect power cable !**
- Open the housing lid (a) via the slit (see arrow) with a screwdriver or similar tool and remove the fuse holder.
- Pull the voltage selection card (c) directly out of the housing via the indicator pin (b).



- Turn the voltage selection card until the required voltage can be read at its **lower** edge.



- The indicator pin must be inserted into its groove in the card and must point upwards.
- Slot the voltage selection card with the printed side facing the IEC connector into the housing and align the indicator pin to the marking on the housing.
- Replace the lid and check that the indicator pin is positioned in the opening to show the required voltage specifications.

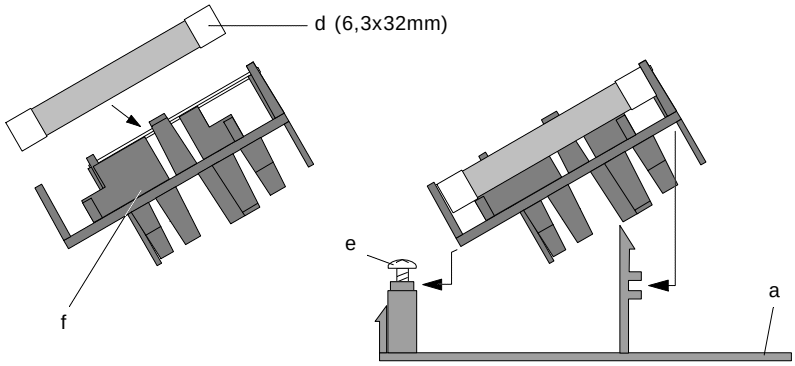
CAUTION !
If the voltage has been changed, the fuses must also be changed! (Rated fuse values are given on the type plate.)

Changing fuses
for printers no.1 - 143

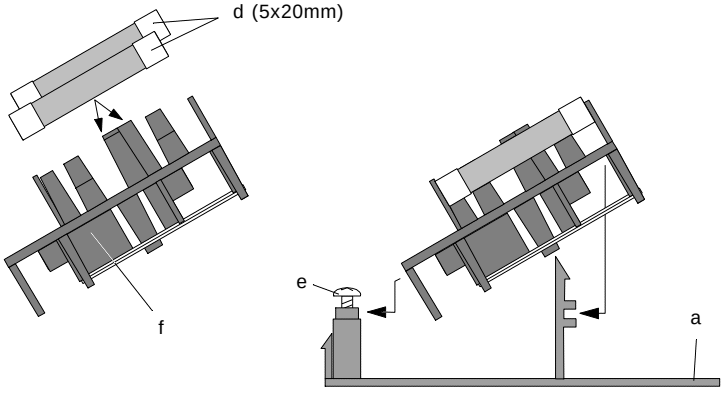
Changing between US and European fuses

- Open the (housing) lid (a) as described on the preceding page.
- Unscrew the recessed-head screw (e) by one turn.
- First push the fuse holder (f) back horizontally and then lift it out.

US fuse (1 fuse (d) !)



European fuse (2 fuses (d) !)



- Place the fuse holder (f) with fuse(s) onto the lid as shown in the diagrams.
- Tighten the recessed-head screw (e) and replace the whole block in the housing.
- The fuses inserted first into the housing are active.

Connecting the printer

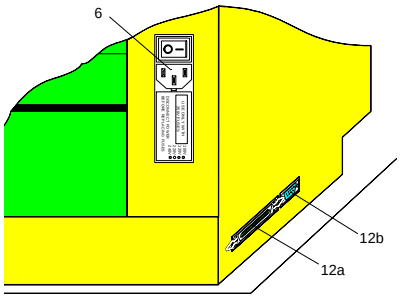
Power cable

CAUTION !
The DA608 is an instrument of
Protection Class 1

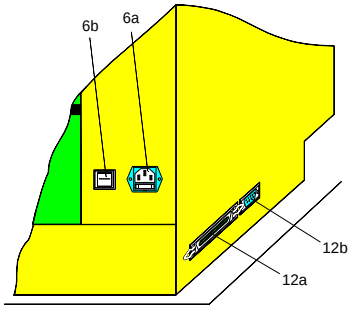
The printer must be operated only from grounded power sources!

Plug the power cable into the right-hand side of the printer (6a).

Printers no. 1 - 143



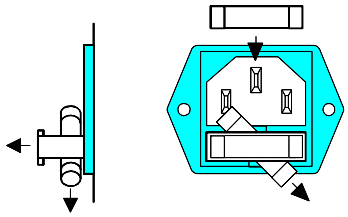
Printers from no. 201



Changing fuses
from printer no. 201

When changing fuses, disconnect the power cable !

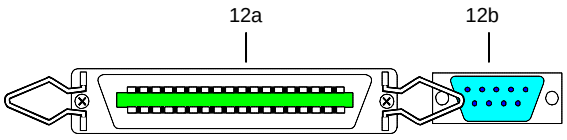
Open the holder compartment with your fingertips or a ball-point pen. Change the fuse as shown below.



The rated fuse values are shown in the Section “Technical Data“.

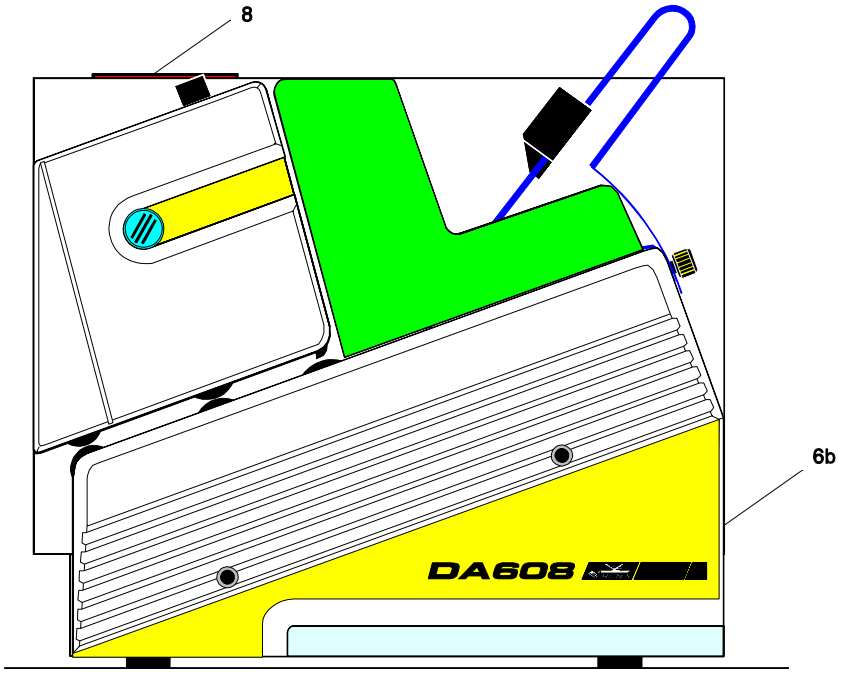
Interface cable

Plug the interface cable into terminal (12a) on the right-hand panel of the printer for a parallel interface connection or into terminal (12b) for a serial interface connection. Then lock it and connect the cable to your PC.



Switching the printer on

Switch the printer on via the power switch (6b) on its right-hand panel.



The following brief initialization message is displayed on the control panel (8)

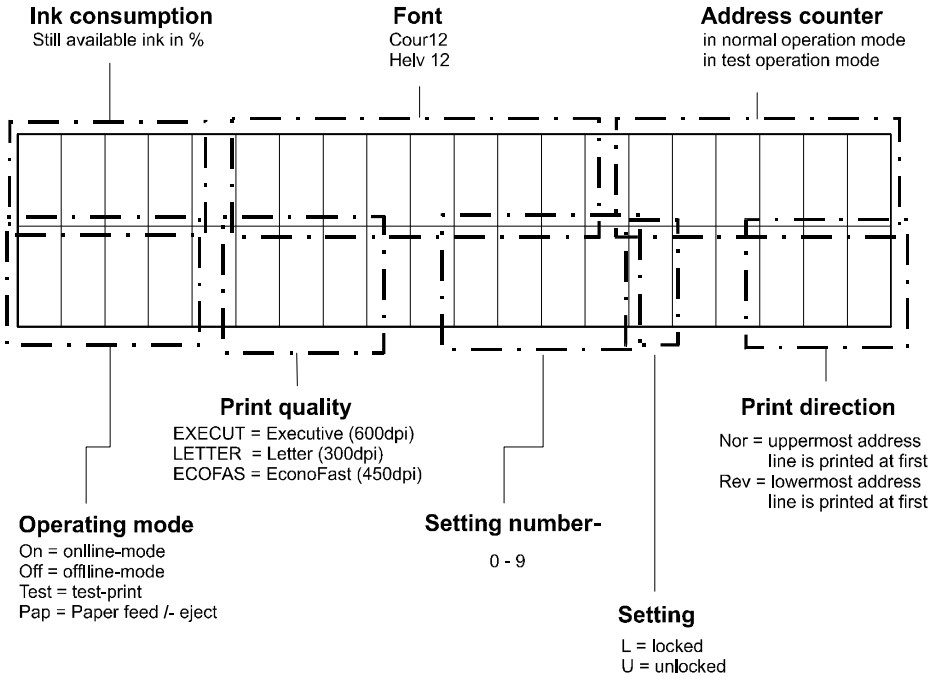
DA608	Inkjet
Initialization	

When the printer is in off-line mode, the following message is displayed

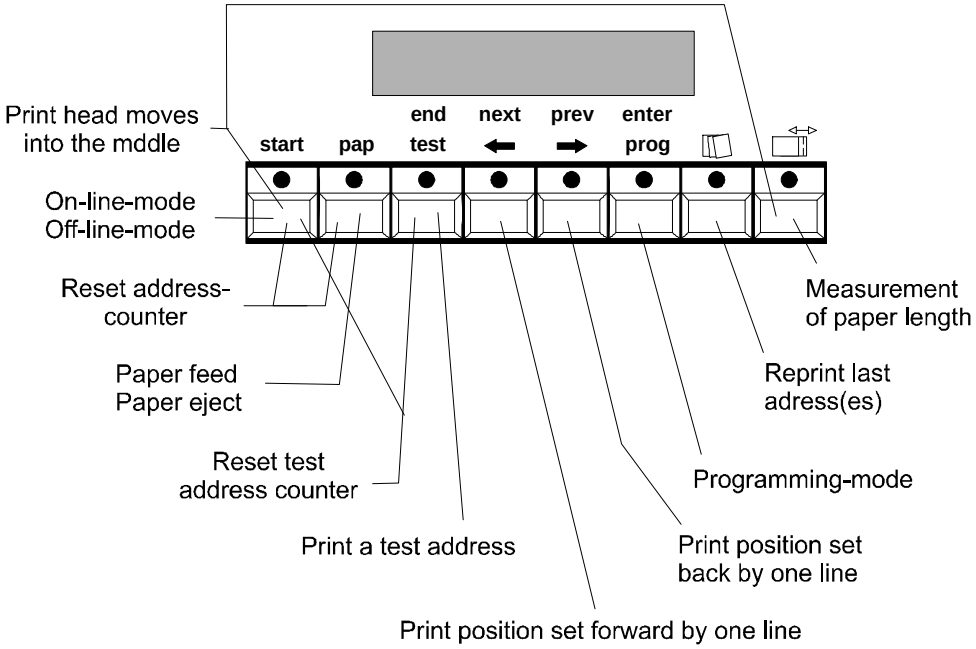
100%	Cour12		000000
Off	Exec	Set1U	Nor

This message is explained on the next page.

What does the display show ?



What do the keys mean ?



The four middle keys have a dual meaning, depending on the operating mode!

"START" key — The "**START**" key is used to switch between on-line and off-line modes .

"PAP" key — The "**PAP**" key draws in a document, or ejects an already drawn-in document.

"TEST" key — The "**TEST**" key draws in one document, prints a test address onto it and ejects it.
If you press the “Test” key down for longer than one second, then test addresses will be printed out continuously.

"PROG" key — The "**PROG**" key gets you into programming mode.

"⬅" key — The printout starts one line away from the edge of the paper.

"➡" key — The printout starts one line closer to the edge of the paper.

key — This key allows you to print out the last (up to 20) addresses repeatedly.

key — This key allows you to measure the paper length.

"START"+"PAP" **keys** — By pressing these two keys simultaneously, you can reset the address counter from its currently displayed value to "0".

"PAP"+"TEST" **keys** — By pressing these two keys simultaneously, you can reset the test address counter from its currently displayed value to "0".

When are the keys active?

With the exception of the "START" key, the keys are active **only** in the off-line operating mode.
The "START" key allows you to switch between on-line and off-line operating modes. To check the current operating mode, simply look at the display.

Off-line mode

The second line of the display reads "Off".

100%	Cour12		000000
Off	Exec	Set1U	Nor

In this mode you can change the settings via the keyboard.

By pressing the "START" key, you get back on-line.

On-line mode

The second line of the display reads "On".

100%	Cour12		000000
On	Exec	Set1U	Nor

In this mode you can start the printer from your computer via instruction sequences.

3. Addressing paper 3.1

Inserting paper **3.1**

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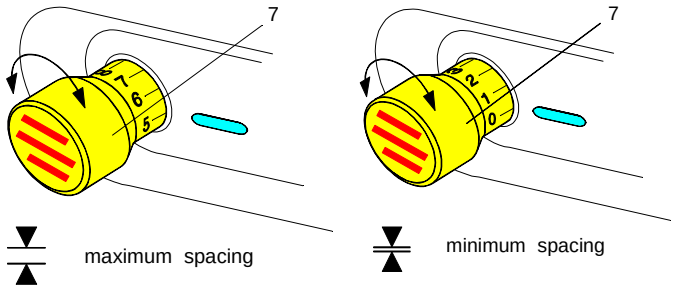
3. Addressing paper

Inserting paper

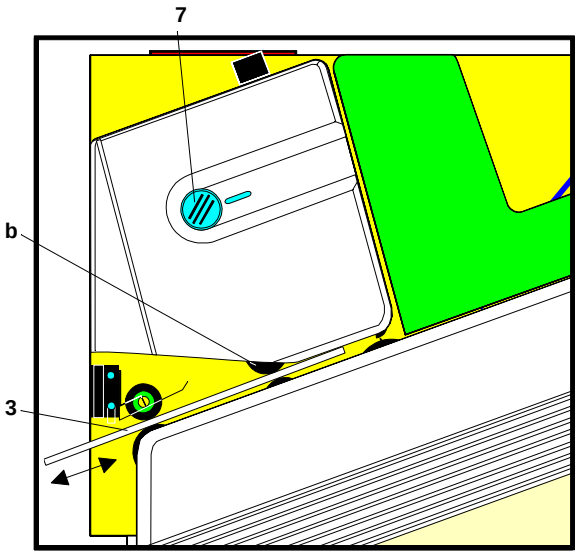
When printing postcards or thin documents, you can work with the smallest spacing. If the printhead smudges the print, or if the paper is particularly thick (such as for magazines), the spacing must be increased.

Setting the print-head spacing

- Turn the knob (7) to its maximum setting, corresponding to the value "5" on the scale (see diagram below).

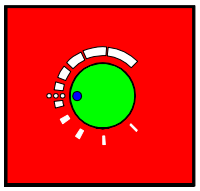


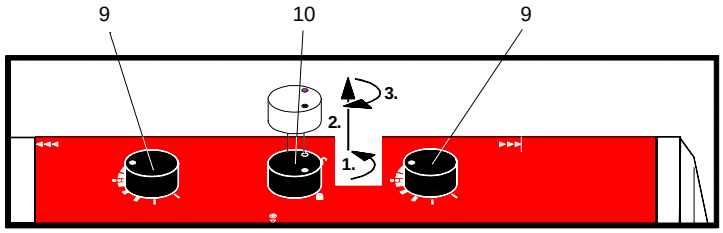
- Place the paper (3) between the adjustable pressure rollers (b).
- Turn the knob (7) to the left until the paper is firmly gripped.



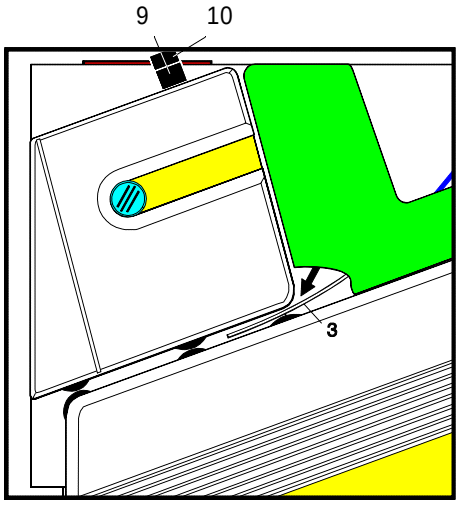
Feeding paper

- Turn each of the two knurled knobs (9) about half a turn away from the stop towards the mid-position (see figure on right).
- Unlock the knurled knob (10), lift it up and lock it again in its raised position (see arrow).

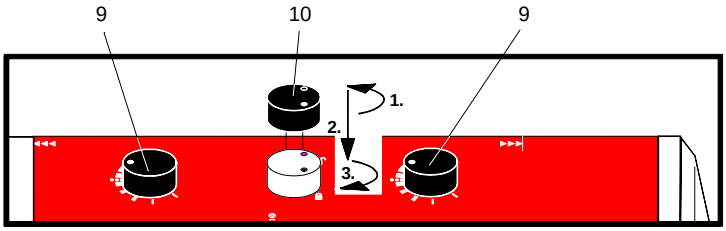




- Place the first piece of paper (3) between the raised stripping blades and the feed roller (see arrow).



- After unlocking the knurled knob (10), let the stripping blades drop down onto the paper. As soon as the knurled knob is locked again, the stripping blades are fixed at the correct height.



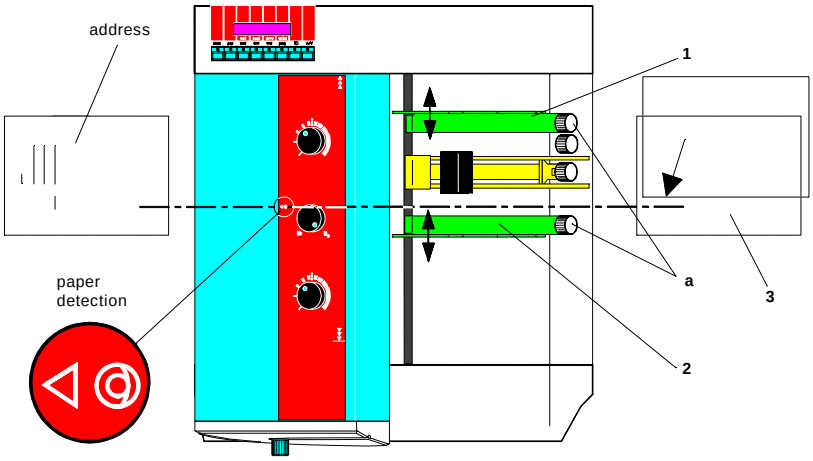
- If the paper becomes skewed as it is pulled in, make fine adjustments via the knurled knobs (9).

Setting page guides

– Loosen the fixing screws (a) and then adjust the feed brackets (1 and 2) to the width of your document (3).

CAUTION !
The paper must cover the paper detector.

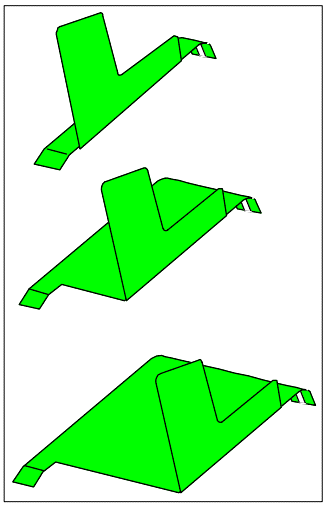
Adjust the position of the feed brackets with respect to the paper detector. The paper edge should project at least 5 mm at the sides beyond the paper detector.



If the installed feed bracket (2) is not wide enough, then exchange it for one of the two wider ones supplied with the printer.

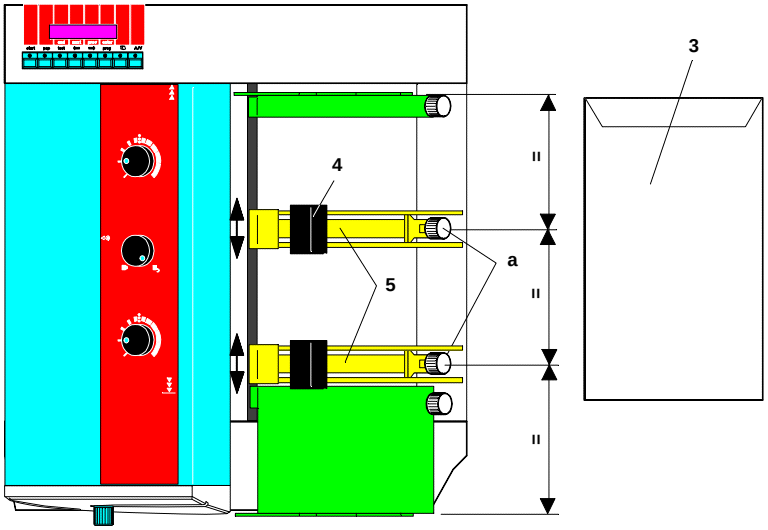
– Loosen the fixing screws (a) and lift the feed bracket (2) from the opening.

– After inserting the new feed bracket, adjust it to the desired width and fix it in place with the screw (a).



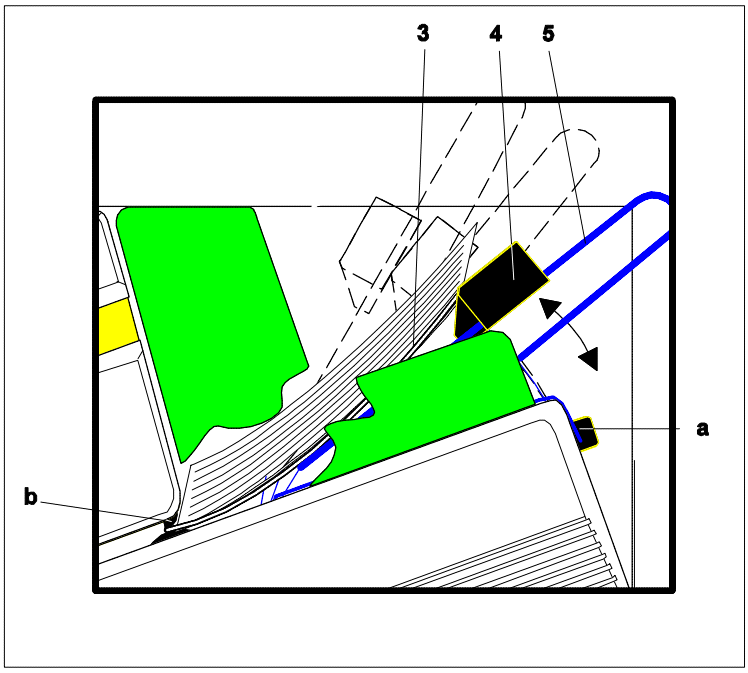
Horizontal bar adjustment

- Use the second bar (5) for additionally securing wide and loose documents.
- Loosen the fixing screw (a) to align the two bars (5) more or less in the middle.



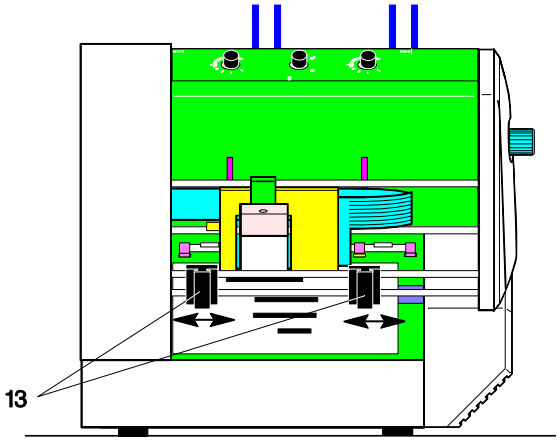
Vertical bar adjustment

- Place the first sheet of paper (3) on the bar between the stripping blade (b) and the guide block (4).
- Slide the guide block (4) up to the upper edge of the paper.
- Fan the paper out in the way shown in the diagram below.
- Tilt the bar.
- The optimal tilting depends on the paper length in the print direction and on the thickness of the material:
  Short paper = **steep** tilting
  Long paper = **flat** tilting
- Secure the bar in place again with the screw (a).



Aligning the exit rollers

– Align the two exit rollers (13) so that the paper is evenly gripped. Take care not to touch the print area in the process.



Check the correctness of your paper settings by **running a paper sheet through without printing an address**.

aper run without address printing

Press the "PAP" key: the lowest sheet is drawn in.

Press the "PAP" key again: The sheet is ejected and the next sheet is drawn in.

Never touch the internal parts of the printer while it is running !

Setting print position

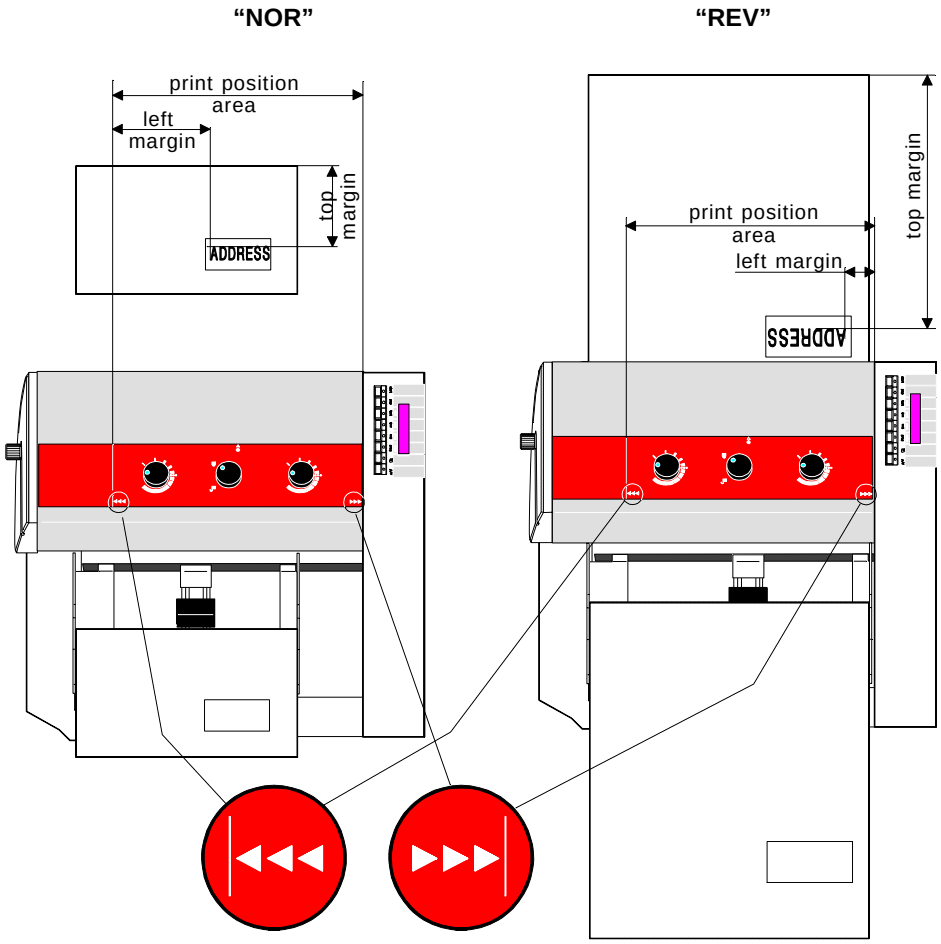
Before inserting your document, you must decide how you wish to position the address onto it, and how you can set this position in the printing area.

Address block rotation

The direction of printing depends on the size of your document and on the left margin.

If the format is wider than the printing area and the print-head cannot reach the required left margin, then the address block must be rotated by 180° together with its left margin.

In “REV” mode, the image memory capacity for an address is limited to 60 lines each of 90 characters.



Left Margin

The left margin is the spacing between the print area edge and the first printed character.

The default setting for the margin is 10 mm.

– If you wish to set a different value, you may select a margin of 0-220 mm in the "Left Margin" menu in programming mode (see Sect. 5).

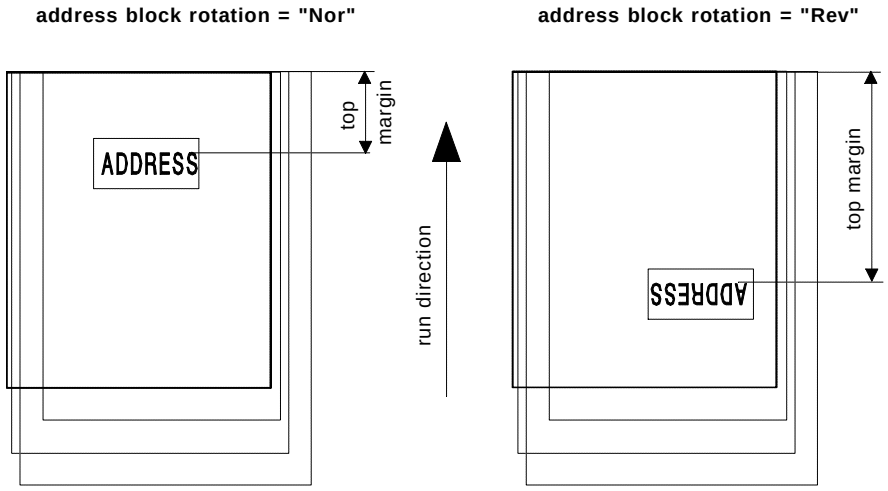
Top Margin

The top margin is the spacing between the edge of the incoming paper and the first printed line.

The default value for the margin is 0 mm.

Without selected format size

If you select the “off” setting in the "Paper Size" menu, i.e. *no* format size, then the DA608 will recognize the top margin value as the spacing between the incoming paper edge and the first printed line. In the address block direction "Rev", the latter will be the last line on the page.
IMPORTANT! Please set and “local lock” the paper size.



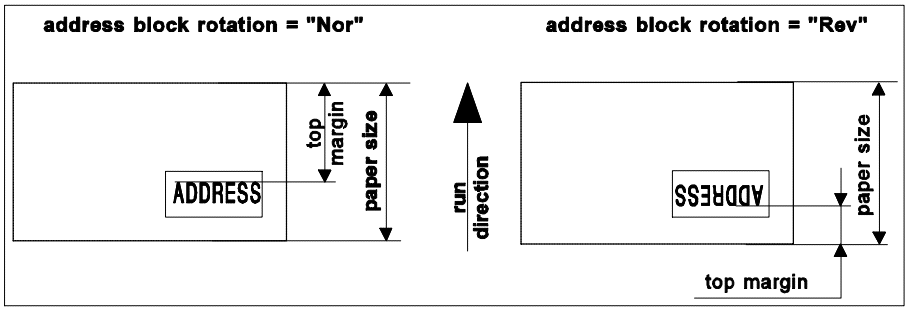
- If you wish to set a different value, you may select a margin of 0-280 mm in programming mode (see Sect. 5) in the "Top Margin" menu.
  You may also change the margin on a line-by-line basis with the cursor keys:

  ⇦ key = increase top margin line by line

  ⇨ key = decrease top margin line by line

With selected format size

When you select a specific format size in programming mode (see Section 5) in the "Paper Size" menu, then the top margin value is the same for both address block directions ("Nor" and "Rev"). It is important to set and “local lock” the “Paper Size”.



Check your print position settings by performing a **print test.**

Print test

Press the “TEST” key. The lowest sheet will be pulled in, the test address is printed out and the sheet is ejected.

Assuming that the test shows the print-out to be correctly positioned, press the “START” key to return to the on-line status.

Never touch the internal parts of the printer while it is running!

4. Printing 4.1

Print cartridge **4.1**

Which cartridges to use *4.1*
When should the cartridge be replaced ? *4.1*
Removing and replacing the cartridge *4.1*
Resetting the ink counter *4.2*
Cleaning the ink nozzles *4.2*
Print test *4.3*

Counting addresses **4.3**

Counting test addresses *4.3*
Counting received addresses *4.3*

4. Printing

Print cartridge

Printing is performed with a standard print cartridge. When the ink is used up, the cartridge must be replaced.

Which cartridges to use

"HP 51645A style" inkjet cartridges. There are many different styles to choose from. Cartridges can be purchased from your Rena dealer.
Black HP51645A, Versatile Black C8842A, Red C6168A,
Green C6169A, Blue C6170A, Yellow C6173A

When should the cartridge be replaced ?

When the display (top left) reads 0%,

0%	Cour12		000000
Off	Exec	Set1U	Nor

the following message appears

NO INK !!
CHANGE PRINTHEAD

and printing is interrupted.

Removing and replacing the cartridge

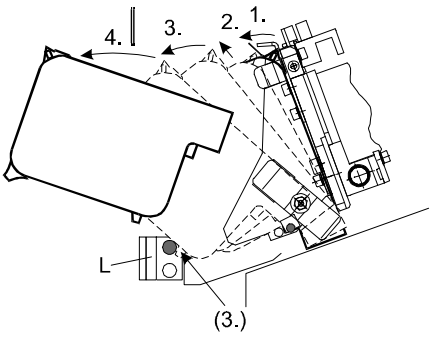
- Press the "START" key to go into off-line mode.
- Press the "START" and " keys. The cradle moves to its mid-position.

The display shows

OK, EXCHANGE CRTRGE !
HIT START TO EXIT

To avoid any damage to the nozzle contacts, remove the cartridge as instructed on the next page.

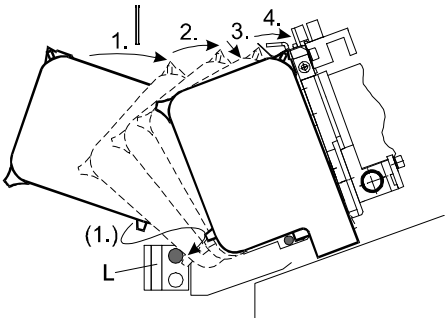
Removing the cartridge



1. Press lightly on the cartridge-securing clip for releasing the cartridge-from this clip.
2. Lift the whole cartridge out so that its base is free to move.
3. Tilt the cartridge forwards until its nipple touches the underside of the upper guide bar of the runners (L).
4. Continue to move the cartridge around this bar and then pull it out gently.

– Observe the directions on the new cartridge packet.

Replacing the cartridge



1. Tilt the cartridge backwards until its nipple touches the underside of the upper guide bar of the runners (L).
2. Continue to move the cartridge around this bar until its base touches the underside of the bar.
3. Insert the cartridge further along the stop.
4. Click the cartridge into place by pressing it in at the top.

– Press the “START" key:

The display shows

PRINT HEAD TEST ? enter = YES end = NO

Resetting the ink counter

– In off-line mode, first press the “PROG” key and then the “PREV” key.

The display shows

HEAD RESET: yes

– Press the “ENTER” key twice.
– Press the “END“ key to return to off-line mode. The display on the ink counter is reset to 100%.
– Press the “START“ key to return to on-line mode.

The ink counter applies only to cartridge HP 51645A !

Cleaning the ink nozzles

The ink nozzles are cleaned **automatically**

– before every test print
– after switching over from OFFLINE to ONLINE
– after 50, 100, 200, 300 or 1000 addresses as required. This can be set in programming mode by selecting “CLEANING CYCLE“ in the “SPECIAL FUNCT.“ menu.
– before starting printing if the cradle was in its home position.

Print test

Press the “TEST” key. The lowest sheet is pulled in and printed with a test address. The sheet is then ejected and the next sheet is pulled in.

Never touch the internal parts of the printer while it is running!

Counting addresses

Every print operation is counted after the paper has been ejected. The number of print operations can be seen in the right top of the display. The printer can count addresses in two different and independent ways.

Counting test addresses

A count of the test addresses represents the number of *test* print operations performed by the printer after the paper is ejected.
To perform this count, press the “TEST” key when the printer is in off-line mode.
If you switch to on-line by pressing the “START” key, the count will disappear from the display but will remain stored in the printer.
If you return to off-line mode by pressing the "START" key again and carry out more test prints, the stored counter number reappears in the display and counting is continued.

By simultaneously pressing the "PAP" and "TEST" keys, you can reset the currently displayed counter number to “0”.

Counting received addresses

An address count represents the number of data print operations *received* by the computer after the paper is ejected.

This counting takes place when the printer is on-line.
The counted number remains visible in the display until you press the "TEST" key in off-line mode. Only when you change back to on-line mode does the counted number of the received data-print operations appear in the display again.
If you return to data transfer with printing, the counting is continued.

By simultaneously pressing the "START" and "PAP" keys, you can reset the currently displayed counter number to “0”.

Both address counters are reset when the printer is switched off!

5. Printer functions 5.1

Programming mode **5.1**

What is programming mode for ? *5.1*
Getting to programming mode *5.1*
What does the display show in programming mode? *5.2*
The key functions in programming mode *5.2*

Menu overview **5.3**

Explaining the menu fields *5.4*
Application example in programming mode *5.15*

Initializing the printer (default reset) **5.15**

5. Printer functions

Programming mode

The printer is delivered with its menus set to default values at the works.

Should you wish to change a font quality or type, for example, you must go into programming mode.

What is programming mode for ?

Programming mode is used to set specific parameters manually via the control panel.

The "**Menu overview**" section lists the available menu fields and their associated options.

The parameters can be changed either by software instructions or by new settings in programming mode.

Getting to programming mode

- Change over to off-line mode by pressing the "START" key.
- Press the "PROG" key.

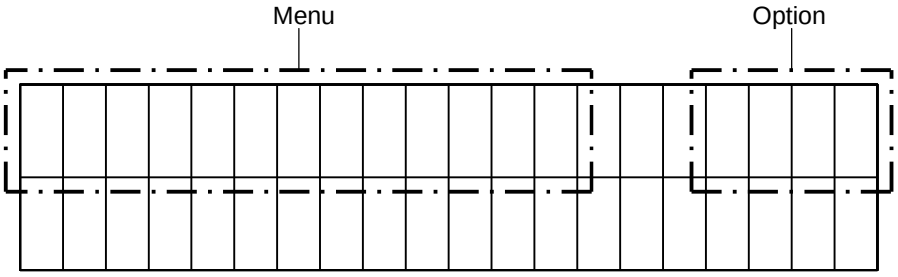
The following display briefly appears

DA608 Inkjet Programming mode

The printer is in programming mode when the following display appears

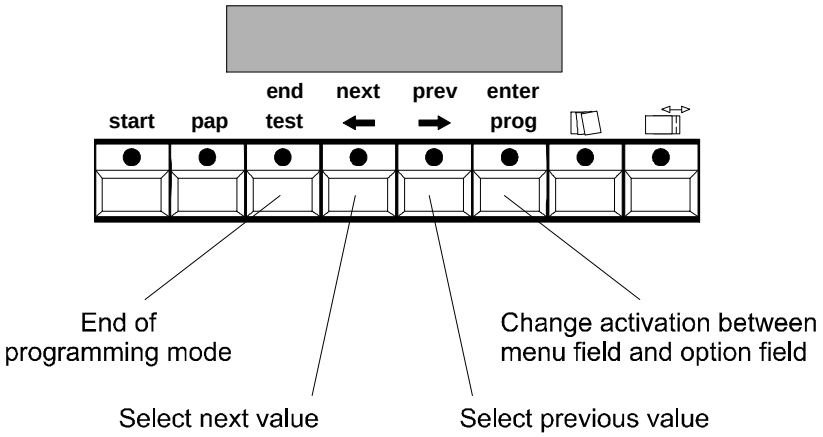
(Menu field) blinking (Option field)

What does the display show in programming mode?



The key functions in programming mode

In programming mode, the top line of key lettering applies (END, NEXT, PREV, ENTER).



"ENTER" key

This key allows you to change over between displaying the menu field and the option field. The currently active field blinks. The last status set is always stored.

"NEXT" key

This key allows you to move to the next possible contents of the active field.

"PREV" key

This key allows you to move to the previous contents in the active field.

"END" key

This key allows you to leave programming mode and return to normal mode.

Menu overview

MENU	OPTION				
SETTING	No 0 No 1 ... No 9				
FONT	Cour12 Cour12bo Cour12it Helv07 Helv10 Helv12 Helv12bo Helv12it Helv13 LetGot12 TmsRm12 Bru12 OCR-A				
PRINT QUALITY	600 550 500 450 400 300 200(Fast) dpi				
LEFT MARGIN	0 ... 227 [mm]		0 ... 8.94 [inch]		
TOP MARGIN	0 ... 999 [mm]		0 ... 39.3 [inch]		
TYPE OF BARC.	off	zip	bpo4 kix	2/5i coda co39 c128	ean[1])
BARC. OPTIONS		off zip dpbc			
BARC. POSITION		top bot conv			
SMALL WIDTH (dots)				1 ... 6 ... 99	
LARGE WIDTH (dots)				1 ... 15 ... 99	15
BARCODE HEIGHT (dots)				1 ... 50 ... 999	
CHAR. SPACING	0 1 2 ... 89 90				
CHAR. HEIGHT	1x 2x 3x 4x 5x 6x				
CHAR. WIDTH	1x 2x 3x 4x 5x 6x				
LINE SPACING	1 2 ... 6 ... 10				
ORIENTATION	NOR REV				
PAPER SIZE	off EXEC LETT LEGA A4 A5 MONA C10 INTD C5 INSD C6 A6 CRD1 CRD2 HAGA B5 USER				
CHARACTER SET	USA7 UK7 Fra7 Ger7 Ita7 Spa7 Den7 Nor7 Swe7 SwN7 Por7 PC8 Rom8 P850 ECMA P8DN ICEL P852 P860				
PRINT MODE	aut. uni bid.				
PAPER SPEED	100% 90% 80% ... 40% 30%				
EJECT DELAY	off 0.1 – 9.9 (sec)				
PAPER SENSOR	on off				
SEPARATION	min lev1 lev2 lev3 lev4 max				
VERT. CORRECT.	-5 -4 -3 -2 -1 0 1 2 3 4 5				
SETTING LOCKED	no yes (Must set to no when using Windows programs)				
SPECIAL FUNCT.					
BIT8 SET TO	BIT8 FIX0 FIX1				
AUTO LF	off on_1 on_2 on_3				
HEX TO ASCII	off on				

[1]) EAN barcode for European printers / UPC barcode for US printers

MENU	OPTION
LINE MODE	off 0 1 ... 99
DELIMITER < >	off on
STX-ETX	off on
OFFSET EDGE	0 ... 227 [mm]
CLEANING CYCLE	50 100 200 300 1000 off
WARMING	off lev1 lev2 lev3 lev4 max
CAPPING DELAY	off 10s, 20s, 30s, 40s, 50s 60s
SERIAL INTERF.	PC DISP
HANDSHAKE	both XON DTR
BAUD RATE	19K2 9600 4800
DATA LENGTH	8Bit 7Bit
PARITY	no even odd
STOPBIT	1 2
SERVICE	Rev Adrc Font Ram Head Corr Char HexD InpD SetD
HARDWARE TEST	-- For service use only ! --
HEAD RESET	yes no (Choose yes when installing new cartridge)

The **underlined** values are default settings

Explaining the menu fields

Setting

Selection of user configurations.

If you wish to use the DA608 in certain applications, it may be necessary to change some menu settings. You may set up various configurations yourself and store these in the "Setting" menu.
Nine of the 10 options "No 0" - "No 9" are available for your own configuration.
The first option, "No 0", is reserved for the default setting.
If you select this option, programming mode is terminated immediately after pressing the "ENTER" key. No further changes can then be made in this configuration.
To make changes in this configuration, you must first select one of the remaining nine options ("No 1" to "No 9"). When programming mode is terminated, the changes made are automatically stored in the selected "Setting No".
You can lock the setting you have made immediately by using the key to call the “SETTING LOCKED“ option and selecting between “yes“ and “no“ with the same key.
Warning! Locking settings will cause problems when printing from Windows programs using a Rena driver.
The set configurations are retained when the printer is switched off.
In the "SetD" option in the “Service” menu you can print out the active configuration (see "Service" description).
After a works initialization via the "PROG" key (at switch on) all configurations are set to the default setting.

“Local Locking” individual menu options.

Page down the menu until you get to the option you want. Press the key. The following message will appear on the display

Menu field	Option field
Local locked : NO blinking	

Now use the , or keys to select between the options "YES" and "NO".
When you select the "YES" option, "(L)" appears in the second line of the display indicating the this setting has been “local locked”.

Menu field	Option field
(L)	

In the sample print-out of the “SetD" service program on page 5.14 for example, "ORIENTATION : REV" and "PAPER SIZE : A4" are marked as “local locked“.

You may also change local locked statuses when the setting is locked.

The following menu options can be individually locked:

FONT	CHAR. SPACING	PAPER SIZE
PRINT QUALITY	CHAR. HEIGHT	CHARACTER SET
LEFT MARGIN (mm)	CHAR. WIDTH	PRINT MODE
TOP MARGIN (mm)	LINE SPACING	
TYPE OF BARC.	ORIENTATION	

NOTE **!:** Locking or “local locking” settings may lead to incompatibilities with most Windows software applications.

EXAMPLES:

- When you lock the left margin, the application program will implement absolute horizontal positions.
- When you want to lock the orientation to REV, the sequences for setting the CONV position with automatic ZIP search cannot be executed.

Other conflicts may also occur.

Fonts

In selecting your fonts, refer to the section entitled “Fonts”. Thirteen different fonts are installed in the printer. If more fonts are present, only the first 25 are shown. The following sequence is observed:

works fonts
soft fonts.

Print Quality

Selection between 7 print qualities:
600, 550, 500, 450, 400, 300, FAST (200)

600 dpi: A large number of print dots per character, both vertically and horizontally, hence a slower print speed.

300 dpi: A large number of print dots per character horizontally and a small number of print dots per character vertically, hence a somewhat faster print speed.

FAST: 200 dpi (draft print quality)
A small number of print dots per character, both vertically and horizontally, hence the fastest print speed.

Left Margin

This menu allows you to set the spacing between the printing area and the first printed character in the range between 0-228 mm.

When the PREV/NEXT key is pressed continuously, the change is performed in cm-steps, otherwise in mm-steps.

Top Margin

This menu allows you to set the spacing between the paper edge and the first printed line in the range between 0-999 mm.

When the PREV/NEXT key is pressed continuously, the change is performed in cm-steps, otherwise in mm-steps.

Type of barcode

Use this menu to select a barcode.

The following barcodes are available:

- ZIP barcode
- bpo4 barcode
- 2/5 interleaved barcode
- coda barcode
- co39 barcode
- ean barcode
- kix barcode
- code128 barcode

If you acknowledge the "ZIP" barcode with the ENTER key, you will be offered the following parameter setting:

" BARCODE OPTIONS: off "

BARCODE OPTIONS (only for USA !)

IMPORTANT!: Current USPS requirement have made this feature invalid. Please be sure this feature is set to “off”.

Selecting between the options "zip" or "dpbc" will caused the printer to do the following:

In the setting "ZIP" the nine (or five) digits of the postal code from the "ZIP line" are recognized and the corresponding barcode (with check sum) is printed. The line with the "D_{LE}" sequence (see interface description - Sect. 8 Zip barcode) in the addressing is then obviated.
The numbers of the postal code should be sent in the last line of the address. The postal code cannot have more than nine digits, but must have at least five. As the number sequence search starts from the end of the address, the last nine digits of a sequence are converted. You may add a separating hyphen or other printable character between the fifth and sixth digits.

At the "DPBC" setting, the program searches for the house number at the start of the street line and adds it to the ZIP barcode.
The street line must be sent to the printer before the line containing the postal code. The house number should be at the beginning of the line. Where the house number consists of three digits, only the last two are converted into barcode. Addresses consisting of only a single digit are preceded by a 0.

BARCODE POSITION

After you acknowledge your choice in the "BARCODE OPTIONS" menu field, the following display appears:

"BARCODE POSITION : top"

The ZIP barcode position can be defined by the options "top", "bot" or "conv".

These define the position of the ZIP barcode within the address block. The following variants are possible:

top:	the barcode line is printed as the first address line.
bottom:	the barcode line is printed after the last address line.
conventional:	the position of the barcode line is fixed.

In the “conv” option, the following settings are made:

LEFT MARGIN: 94 mm
TOP MARGIN: 51 mm

The barcode is indented by 30 mm and printed in the eleventh line, i.e. the spacing between the first line of the address and the barcode is 10 line feeds (at 6 lpi).

The values for LEFT MARGIN and TOP MARGIN can be changed to your requirements to match the position of the address on the envelope.

Correct positioning of the address is ensured only in the "Nor" position.

Other barcodes

If you acknowledge barcode "2/5i", "coda", "co39" or “c128” with the ENTER key, you will be offered the following parameter setting:

"SMALL WIDTH : 6"

SMALL WIDTH

You can set the width of the narrow bar from 1 to 99 (dots).

LARGE WIDTH

After you have acknowledged your setting in the "SMALL WIDTH" menu field, the following appears:

"LARGE WIDTH : 15"

You can now set the width of the thick bar from 1 to 99 (dots) (except for c128).

BARCODE HEIGHT

After you have acknowledged your setting in the "LARGE WIDTH" menu field, the following appears:

"BARCODE HEIGHT : 50"

You can now set the height of the barcode from 1 to 999 (dots).

A maximum of 150 dots high can be printed with a single movement of the printhead.

Other Barcodes

If you acknowledge the barcode "ean" with the ENTER key, then you will be offered *only* the parameter setting "BARCODE HEIGHT" - as already described.

Char. Spacing

You can change the character spacing from 0 to 90 dots by inserting additional blanks.

Char. Height

You can increase the character height up to sixteen times without changing the width.

Char. Width

You can increase the character width up to six times without changing the height.

Line Spacing

You can change the spacing between the lines from 1 to 10 lines per inch.

Orientation

The address block may be rotated by 180°.

In "Nor" mode, printing is from top to bottom.
In "Rev" mode, printing is from bottom to top.

In “REV“ mode, the image memory capacity for an address is limited to 60 lines each of 90 characters.

Paper Size

You may select any of the following format sizes:

Format	Meaning	P/E/ Cd*	Size in inches Width x length**	Size in mm Width x length **
off	No format size	--	--	--
EXEC	Executive	P	7 1/4 x **10 1/2**	184 x **267**
LETT	Letter	P	8 1/2 x **11**	216 x **279**
LEGA	Legal	P	8 1/2 x **14**	216 x **356**
A4	DIN A4	P	8 1/4 x **11 11/16**	210 x **297**
A5	DIN A5	P	5 13/16 x **8 1/4**	148 x **210**
MONA	Monarch	K	**3 7/8** x 7 1/2	**98** x 190,5
C10	Com-10 (Business)	K	**4 1/8** x 9 1/2	**105** x 241
INTD	International DL	K	**4 11/32** x 8 21/32	**110** x 220
C5	International C5	K	**6 3/8** x 9 1/64	**162** x 229
INSD	Inserter DL	K	**4 1/2** x 9 1/64	**114** x 229
C6	International C6	K	**4 1/2** x 6 3/8	**114** x 162
A6	DIN A6	P	**4 1/8** x 5 13/16	**105** x 148
CRD1	Card 1	Kt	**4** x 6	**102** x 152
CRD2	Card 2	Kt	**5** x 8	**127** x 203
HAGA	Hagaki	K	**3 15/16** x 5 13/16	**100** x 148
B5		K	**6 15/16** x 9 27/32	**176** x 250
USER	The format length can be entered in mm	P		min. 70 x **75** max. 435 x **999**

When you select a specific format size, the top margin value is identical for the address block directions "Nor" and "Rev" (Cf. Sec.3 - Top Margin).

If you select the setting "off", i.e. *no* format size, then the DA608 recognizes the top margin value in the address block direction "Rev" only as the spacing from the paper feed edge to the first printed line, or in this case the last page line (Cf. Sec.3 - Top Margin).

Character Set

National character sets with their own special characters in each language (see character sets in the Annex).

Print Mode

You may choose between three print modes:

bidirectional: Prints from left to right, then from right to left (fastest print mode).

unidirectional: Prints *only* from left to right, except for Hex-Dump and HEAD test. (This is a slow and accurate print mode.)

automatic: Bidirectional printing for text and unidirectional for graphics.

* **P** = Paper / **E**= Envelope / **Cd** = Card

** The values in bold print represent the lengths in the transport directions

Paper Speed

The transport speed of the paper can be reduced down to 30%. This may be required for particularly delicate or heavy types of paper.

Eject Delay

0.1 – 9.9 seconds

The paper ejection can be delayed by a selectable time (up to 9.9 seconds), so that the newly printed ink can dry.

Paper Sensor

End-of-form detection on/off.

When the end-of-form detection function is activated, the light barrier is interrogated before every line is printed as to whether paper is present in the print area.

For printing media with black surfaces, you can deactivate the paper light barrier during printing. To do this, you **must** set a format size in the “PAPER SIZE“ menu (see page 5.9) or measure it with the key.

When the end-of-form detection is deactivated *and* a format size has been specified, the light barrier is interrogated as to whether paper is present in the print area *only* when the paper is fed in.

An incorrect form size can lead to printing outside the paper area!

Separation

Setting the distance between two successive sheets of paper.

Select one of the following values :

min. lev1 lev2 lev3 lev4 max.

Vert. Correct.

This allows a vertical offset between the print lines to be corrected. The correction is performed in steps of $^{1}/_{150}$ inch.

Select one of the following 11 values :

-5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5

Setting locked

You may "lock" each configuration individually. This means that the corresponding configuration **cannot** be changed via printer instructions.

If you select the "yes" option, your configuration is locked and the corresponding printer instructions are ignored. In the “SETD“ service program, this setting is clearly identified by “!!!“ (see sample print-out on page 5.13).
The status of the active configuration is shown on the display.
The display text "Set1U" means that configuration "No 1" was selected, but is **U**nlocked.
The display text "Set1L" means that configuration "No 1" was selected, but is **L**ocked.

Special Funct.

Bit8 Set To

This menu allows you to define how the DA608 should execute bit 8. This menu option is active only for *7-bit* character sets.

The following variants are possible:

BIT8: The higher-value bit (bit 8) of the received character is taken over in unchanged form.

FIX0: The higher-value bit (bit 8) of the received character is always deleted.

FIX1: The higher-value bit (bit 8) of the received character is always set to "1".

Auto LF

Automatic line feed off / on_1 / on_2 / on_3

Use this menu to define how the DA608 is to interpret the following control characters:

CR = Carriage return
LF = Line feed
and **FF** = Form feed.

The following variants may be selected:

off :	**CR** = CR,	**LF** = LF,	**FF** = FF
on_1:	**CR** = CR + LF	**LF** = LF	**FF** = FF
on_2:	**CR** = CR,	**LF** = CR + LF	**FF** = CR + FF
on_3:	**CR** = CR + LF	**LF** = CR + LF	**FF** = CR + FF

Hex to ASCII

HEX to ASCII CONVERSION off/on

When the conversion is switched on, the printer interprets the percentage symbol "%" as a non-printable control character. The two characters following the % symbol are then interpreted as HEX values and combined into a single character.

Example: %0C = Form Feed

Line Mode

Line mode off / 1 - 99 lines

This option allows address separation by a specific number of line feeds.
If the PREV/NEXT key is kept continuously pressed, the change takes place in steps of 10, otherwise in steps of 1.

Delimiter < >

Individual page feed on/off

When the delimiter is activated, the two print characters "< >" are recognized as the beginning and end of a page print with paper ejection. This means that you should set the character "<" before a piece of text that should go onto a new page and the character ">" after the text, before the page is to be ejected.

STX-ETX

Start and End of Text recognition off/on

This function allows the operator to turn on or off the recognition of STX and ETX as the beginning and end marker for the address block.

Offset Edge

Offset edge of page by 0 – 227 mm

This function shifts the measured edge of the paper. To the user, it will look as if the left margin was increased.
This option is required for

- Windows programs in which the left edge cannot be changed (or this is not desired).
- Printing of large envelopes with Windows serial print, where the desired print position cannot be set on the PC. Example: Programs under Windows NT for which no RENA DA608 drivers are available.

CLEANING CYCLE

Setting the cycle for cleaning the ink nozzles

This function is used to set the number of addresses after which the ink nozzles will be automatically cleaned.
Parameters: 50, 100, 200, 300, 1000, off.

WARMING

Warming the ink cartridge

This function is used to set the warming time for the ink cartridge. min. lev1 lev2 lev3 lev4 max.

Capping Delay

Sets the delay for capping (sealing) the ink cartridge nozzles.
This function is used to set the number of seconds the printer should wait (after running out of data to print) before the ink nozzles will be automatically capped (sealed). Note: “off” is recommended.
Parameters: off, 10s, 20s, 30s, 40s 50s
off = (normal) no additional delay in capping

Serial Interface

Handshake

Handshaking is a signal exchange between computer and printer. It is designed to protect the buffer in the printer memory from overflowing or losing data.
The type of handshaking depends on your computer system or terminal.The DA608 printer supports three ways of sending serial data.

Software handshaking

XON/XOFF (Transmission ON/Transmission OFF) is used by most terminals.

Hardware handshaking

DTR (Data Terminal Ready) is used by PCs.

Both types of handshaking

Baud rate

For the computer and printer to intercommunicate, they must send and receive data at the same clock rate or baud rate. The DA608 printer can be set to four different rates (see preceding table).

Data length — The computer and printer must send and receive the same number of data bits (information elements) per character. The IBM character and graphics set requires 8 bits.

Parity — Parity is an error detection technique for the RS-232-C serial interface used for data transfer. It checks whether the numbers of binary one's in a byte are even (or odd). It may also be deactivated.

Stop bit — The DA608 printer sends two stop bits at the end of every character.

Service

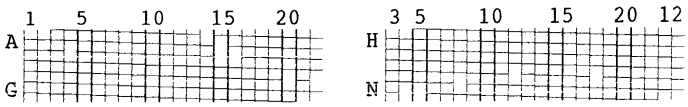
Rev. (=Revision) — The version number of the firmware is displayed together with the prom. number of the paper transport controller. Both numbers must be specified if problems occur with the printer.

Adrc — Display of printed addresses from the initial operation of the printer.

This counter can be reset only by service personnel.

> For the following service steps, several sheets of DIN A4 paper must be inserted over the whole print area!

Head — A test print is carried out in which the results of testing the contacts to the nozzles are displayed in a continuous oblique line.



This is done firstly in a grid pattern, and then all the nozzles are addressed individually in sequence.

Char — Printout of the currently defined character set.

HexD — Hex Dump causes all received characters to be printed from the receive buffer in LetGot12.

Hex Dump is terminated with the PROG, END or START keys.

> Hex Dump may also be initiated directly by keeping the START key pressed down when switching the printer on. Do not terminate Hex Dump by switching off the printer as this may lead to changes in the settings !!

InpD — In Inp-Dump, all 96 kbytes of the receive buffer are printed with PC8 symbols.

> The entire print-out requires about 30 DINA4 sheets. Switch the printer off and then on again, send the print job and then start the dump print-out. The required data is now located at the beginning of the buffer. As soon as it has been printed out, you may stop further printing.

SetD

The 10 printer settings that are activated under each number in the "Setting" option, are printed out.
To do this, you will need two DINA4 sheets. They are not pulled in until *after* the "SetD" instruction has been given.

DA608

SETTING	No 1	No 2 ...	No 9
FONT	Cour12	Helv10	Cour12
PRINT QUALITY	EXEC	EXEC	LETT
LEFT MARG. [mm]	10	20	0
TOP MARGIN [mm]	20	10	0
TYPE OF BARC.	zip	2/5i	ean
BARC. OPTIONS	off	-	-
BARC. POSITION	top	-	-
SMALL WIDTH	-	6	-
LARGE WIDTH	-	15	-
BARCODE HEIGHT	-	50	50
CHAR. SPACING	0	0	0
CHAR. HEIGHT	1x	5x	3x
CHAR. WIDTH	1x	3x	2x
LINE SPACING	6	2	8
ORIENTATION	Nor (L)	Nor	REV
PAPER SIZE	A4 (L)	USER	off
PAP LENGTH [mm]	**-**	220	**-**
CHARACTER SET	P860	USA7	PC8
PRINT MODE	aut.	uni.	bid.
PAPER SPEED	100%	90%	90%
EJECT DELAY	off	off	on
PAPER SENSOR	on	on	on
SEPARATION	min	lev12	min
VERT. CORRECT.	-2	1	0
SETTING LOCKED	yes !!!	no	no
BIT8 SET TO	Bit8	Bit8	Bit8
AUTO LF	off	off	off
HEX TO ASCII	off	off	off
LINE MODE	off	off	off
DELIMITER < >	off	off	off
OFFS. EDGE[**mm**]	0	0	0
CLEANING CYCLE	100	100	100
WARMING	off	off	off
SERIAL INTERF.	PC	PC	DISP
HANDSHAKE	both	DTR	DTR
BAUDRATE	19K2	9600	4800
DATA LENGTH	8Bit	7Bit	8Bit
PARITY	no	even	odd
STOPBIT	2	2	1
EMULATION	PCL3		
MACRO	NO		
DL FONT	NO		
INK COUNTER	100%		
ADDRCOUNTER	1581		
RAM	Standard [2Mbytes]		
REVISION	V4.40 #2722		

Hardware Test Testing of various hardware components.
(For service personnel only!)

Head Reset Resets the ink counter after a new cartridge has been inserted (see page 4.1).

Application example in programming mode

You want to set up a configuration whose line spacing is changed from 6 lines/inch to 8 lines/inch.

– Switch the printer on.

Programming mode
– Press the "PROG" key.

Activate required menu field
– Use the "PREV" or "NEXT" keys to move to the desired "Line spacing" menu field. The blinking menu field is activated.

Changing from menu field to option field
– Press the "ENTER" key. The option field (= 1 line to the **right**) blinks..

Activate required option field
– Use the "PREV" or "NEXT" keys to move to the desired option field "8". The blinking option field is activated.

End programming mode
– Press the "END" key. The new value is now stored in the configuration under the selected "Setting No" and the printer is in off-line mode again
or
– Press the "START" key. The printer is now in online mode again and is ready to continue the print job.

Initializing the printer (default reset)

without loss of configuration
To get to the default configuration, select option "No 0" in the "Setting" menu field in programming mode. To end programming mode, press the "ENTER" key. The "Set 0U" message appears on the display. The set configurations are stored under their respective setting numbers (cf. "Setting" menu prompt).

with loss of configuration
To return *all* the changed values *and* configurations to their original settings, switch the printer off.

– Keep the “PROG" key pressed down when switching the printer on again.

The display shows

DA608	Inkjet
Default Reset	

The printer now has the default settings and all configurations as set at the works. The display shows "Set 1U”.

6. Interfaces 6.1

Centronics parallel interface **6.1**

Signal description *6.2*
Pulse diagram *6.3*

RS-232-C serial interface **6.4**

6. Interfaces

The DA608 printer is equipped with two standard data communications interfaces.

The interface connection sockets are:

- **Centronics parallel**
- **RS-232-C serial**

Both of them allow connection of the printer to the terminal or the computer.

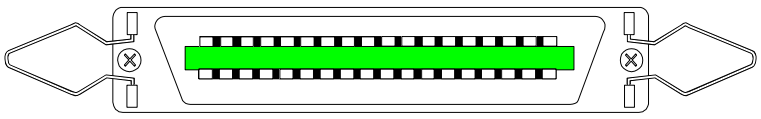
Centronics parallel interface

The DA608 printer is equipped with a standard Centronics parallel interface. This interface is most frequently used for connecting to a personal computer. In contrast to the RS-232-C serial socket, it usually requires no special instructions or configurations for the printer or computer. In addition, the Centronics parallel interface cable allows faster data transmission.

The parallel interface connector has a standard 36-pin Amphenol socket with two metal clips.

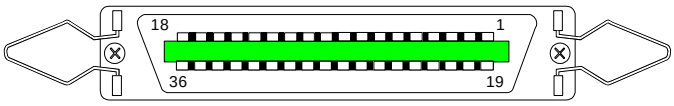
Connecting socket

Connector type: Amphenol socket strip
Design: 57 - 40360
Cable length max. 2 m with Amphenol plug strip 57 - 30360



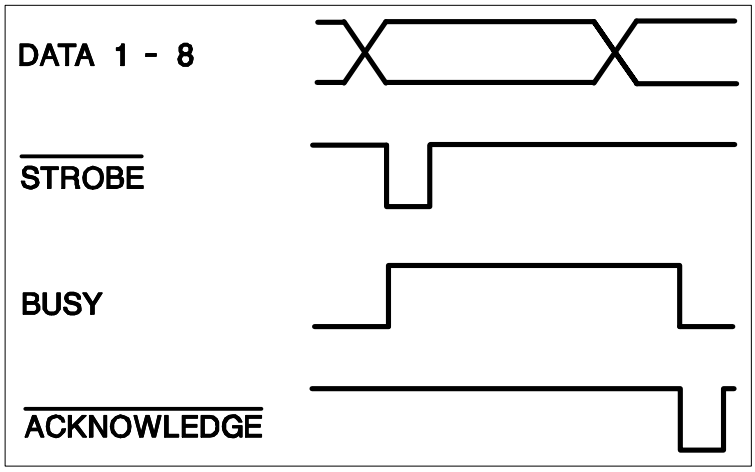
The signal description is given on the next page.

Signal description



PIN	Associated GND	Signal	Signal- Input/Output	Meaning
1	19	$\overline{\text{STROBE}}$	E	This pulse (0.5µs) reports that data bits are valid
2-9	20-27	DATA 1-8	E	Data bits D0-D7
10	28	$\overline{\text{ACKNOWLEDGE}}$	A	Printer report: data are processed (ready to receive)
11	29	BUSY	A	Printer report: data received, data being processed
12	30	PE (Paper empty)	A	Printer reports to computer: no paper
13	--	SELECT (Online)	A	Signal is high when printer is on-line
14	--	Autofeed	E	No function, only for bidirectional interface
15	--	Free		Free
16	--	GND		GND
17	--	Chassis GND		Chassis GND
18, 35	--	+ 5V		+ 5V over 0.2A Si
19-30	--	GND		GND
31	--	$\overline{\text{INIT}}$	E	Resets printer
32	--	$\overline{\text{ERROR}}$	A	Signal is low at printer error
33	--	GND		GND
34	--	Free		Free
36	--	SELECT IN	E	No function, only for bidirectional interface

Pulse diagram



RS-232-C serial interface

The DA608 printer has a standard RS-232-C serial interface that is compatible with most computers and terminals.

Connecting socket

The DA608 printer is equipped with a standard DB-9 serial connection socket.

Pin assignment

PIN	Signal	Signal-Input/Output	Meaning
1	---	-	Free
2	R x d	E	Receive data
3	T x d	A	Transmit data
4	DTR	A	Clear to receive
5	GND	-	Signal ground
6	---	-	Free
7	RTS	A	+12V
8	CTS	E	Clear to send
9	---	-	Free

Pin 2

Received Data (RxD):
Serial data transfer from computer to printer.

Pin 3

Transmitted Data (TxD):
Serial data transfer from printer to computer system or terminal (e.g. X_{ON}/X_{OFF} characters).

Pin 4

Data Terminal Ready (DTR):
Printer output that clears data transfer to the printer or aborts it (handshaking). Data transfer is possible when DTR is high. It is not possible when DTR is low.

Pin 5

Signal Ground (GND):
This is the reference potential for the entire data exchange.

Pin 7

Request to Send (RTS):
This signal is always high when the printer is switched on.

Pin 8

Clear to Send (CTS):
Printer input that clears or aborts data transmission to the computer. When the input is high, the printer can transmit data. This input must always be high for software handshaking with Xon/Xoff.

7. Fonts 7.1

Terminology 7.1

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Serif or sans serif fonts 7.1
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Selecting fonts for your addresses 7.6

7. Fonts

Terminology

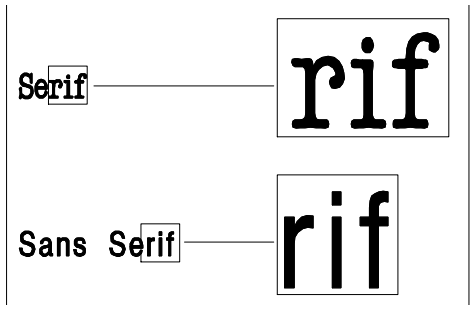
Font

A font is a collection of characters and symbols of the same typeface and spacing, the same size (height), line thickness and character orientation. The set of characters and symbols it contains share a common design.

Cour Helv TmsRm

Serif or sans serif fonts

Serifs are small crosslines above or below characters (known as "feet" in the Antiqua fonts). Cour is a serif font type. Font types without serifs are known as sans serif. Helv is a sans serif font type. The diagram below shows the difference between a serif and a sans serif font.



Character orientation

The characters can be printed out either in normal mode or in italics of constant slope.

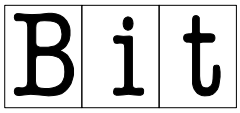
This line is printed with normal characters.
This line is printed in italics.

Spacing

Spacing refers to the relative print density between the letters of a font. The character spacing is either fixed or proportional.

Fixed spacing

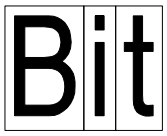
With fixed character spacing, each letter of a font assumes the same width and has the same spacing to the adjacent letters. Cour and LetGot are fonts with fixed spacing.



Fixed
character spacing

Proportional spacing

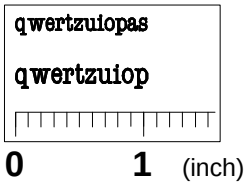
Proportional character spacing depends on the width of each letter. Helv and TmsRm are examples of fonts with proportional spacing.



Proportional
character spacing

Pitch

The pitch depends on the number of printed characters within a linear inch. A font with a pitch of 10 cpi prints 10 characters per horizontal inch (cpi = characters per inch). The pitch can be specified only for fonts with fixed spacing.



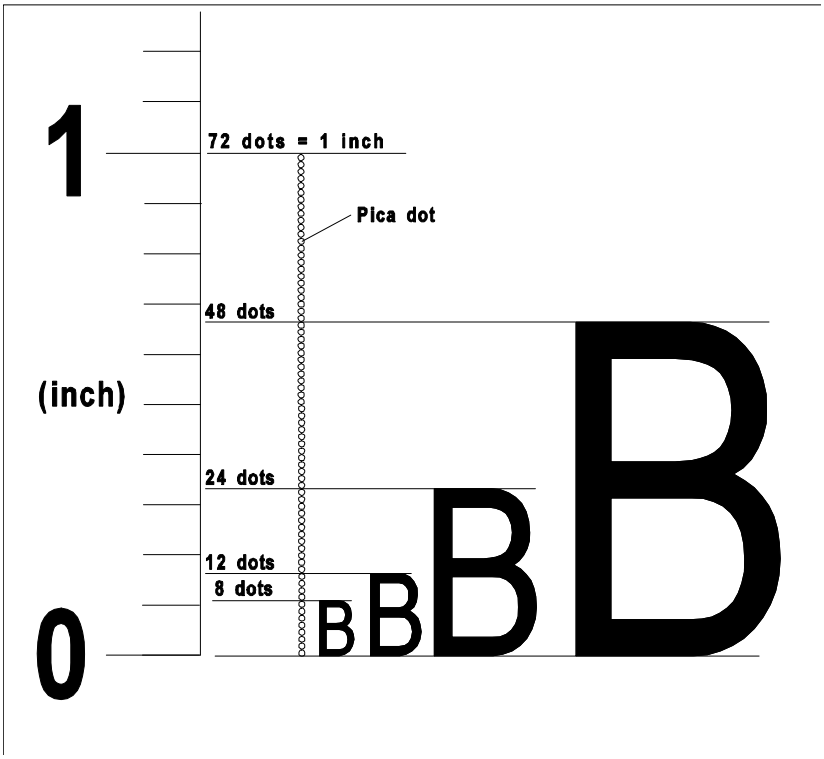
12 characters per inch (cpi)

10 characters per inch (cpi)

Dot size

Dot size (character height) refers to the height of an upper-case printed latter. The dot size is measured in pica points. One pica point corresponds to 1/72 of an inch.

The heights of both types of font, those with fixed and those with proportional character spacing, are measured in pica points.



Underlining

To highlight a piece of text, it may be underlined. The otherwise uniform typeface remains unchanged.

You can underline a single word.

Expanded mode

You can print the address (e. g. for large goods packages) twice as wide while maintaining the proportional character width with respect to the spacing.

This is normal width
This is expanded width

Character spacing

To bring single words out more clearly, you can expand the spacing between letters and words without changing the character size itself.

This E x a m p l e is printed with expanded spacing.

Quality

The term quality refers to the quality of the printout.

EconoFast (Ecofas)

EconoFast mode is used for fast printing with low ink consumption. The result has a resolution of 300x300 dpi (dots/inch).

Letter

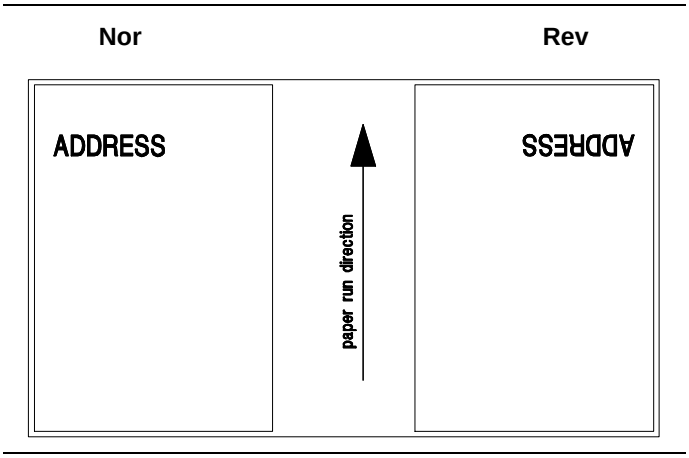
Letter mode is used to obtain a high-quality appearance for your correspondence. The result has a resolution of 300x600 dpi (dots/inch).

Executive (Execut)

Executive is a superior mode designed for correspondence requiring an enhanced appearance. It makes use of the maximum resolution of 600x600 dpi (dots/inch).

Orientation

Orientation refers to the (readable) address position on the paper. It may be rotated by 180°.



For details of image memory capacity, look in the menu option “Orientation“ on page 5.8.

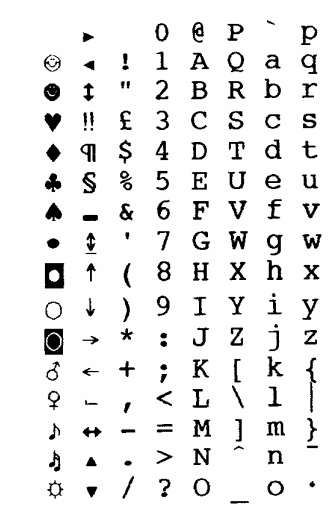
Character sets

A character set consists of characters and symbols that contain all elements of a language or subject (country-specific characters), including punctuation marks and numerals.

7-bit character set

A 7-bit character set corresponds to the definitions of the "International Standards Organization" (ISO) and the 'American Standard Code for Information Interchange' (ASCII).
The 7-bit character set contains 128 characters.
A typical 7-bit character set is shown below.

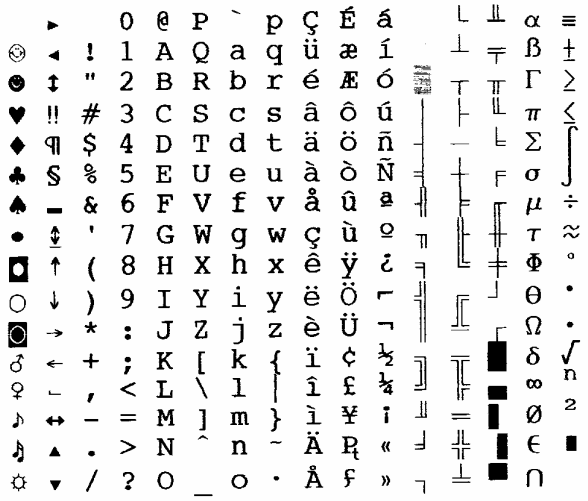
UK7



8-Bit character set

The 8-bit character set contains 256 characters.
It includes many national characters. The most commonly used 8-bit character set is shown below.

PC8



Selecting fonts for your addresses

The fonts are selected by software or by printer commands.

Fonts can be used highly selectively to give an address a specific appearance.
Select the fonts that correspond to the message that you want your document to express.

Serif fonts

The example below shows an address using Cour12 font:

```
Dr.
Lemuel Gulliver
104 Churchill St.
Cambridge CB8 5TD
```

Sans serif fonts

The example below shows an address using Helv12 font:

Dr.
Lemuel Gulliver
104 Churchill St.

Cambridge CB8 5TD

8. Error messages and hints 8.1

Usual error messages 8.1

Error messages for soft fonts 8.3

8. Error messages and hints

Usual error messages

Error message	Cause	Solution
ERROR LCA !! CALL SERVICE	Error in loading the hardware into the XC5206 module.	- Check the connection on or to the print board. - Check the module. XC5206
ERROR LCA Ready CALL SERVICE	Printing error – the XC5206 module does not confirm successful completion of print operation.	- Check the printhead. - Check that the correct firmware was loaded.
PRINTHEAD ERROR !! CHECK HEAD MOVEMENT	The printhead fails to reach its end position. Problem with home sensor	Check the printhead. Check home sensor.
HEAD INTERRUPT ERR !! START&PROG TO CONTINUE	The printhead is jammed. No signal from encoder. Encoder strip is out of sensor.	Check the encoder strip to be sure it is within the sensor, located on the back of the printhead carriage.
NO PAPER !!	Paper has run out.	Insert new paper (see Sect. 3).
PAPER JAM !! REMOVE PAPER	Paper is jammed. Paper is not properly separated (overlapped). Wrong paper size set.	Remove jammed paper and readjust the paper feed mechanism (see Sect. 3). Make sure paper size is set.
POSITION ERROR !! CHECK TOP MARGIN	The printed area is outside the paper format. The light barrier for paper detection is not working properly. Dark colors on underside of mail piece. See below.	Check the light barrier. Reduce the "Top margin" setting with the "⇨" key or in programming mode, or correct the paper size (see Sect. 5). Check the paper for black areas.
ADDRESS TOO LONG CHECK TOP MARGIN	Address does not fit onto the paper. No form feed. Dark colors on underside of mail piece	Reduce the "Top margin" setting with the "⇨" key or in programming mode, or correct the paper size (see Sect. 5). Send FF from software. Set paper size and set “paper sensor” feature “off”.
NO INK !! CHANGE PRINTHEAD	Ink monitor = %0. Cartridge may be empty.	Replace the cartridge (see Sect. 4). Do “Head Reset”.

Error message	Cause	Solution
CHECKSUM ERROR !! MAKE DEFAULT RESET	Error in the buffered RAM (module M48Z58).	– Reset to default value (see Sect. 5). – Replace module M48Z58.
CHECKSUM ERROR !! MAKE COUNTER RESET		
CHECKSUM ERROR !! MAKE DEFAULT RESET		
CHECKSUM ERROR !! MAKE DEFAULT RESET		
TEST MACRO TOO LONG	The user-defined test address is too long.	Limit the size of the test address to 3 Kbytes.
BUFFER OVERFLOW !!	Error in data transfer.	Check connections of the interface cable.
EPROM ERROR !! VERIFY FONT	Error in the Flash prom.	Reload the RENA fonts.
EPROM ERROR !! VERIFY PROG		Reload the program (firmware).
RAM ERROR !! VERIFY RAM	Error in RAM.	Have the CPU board replaced by service personnel.
PROGRAM ERROR !! MAKE DEFAULT RESET	Error in program execution.	- Perform a default initialization (Sect. 5) - Reload the firmware.
SAVE INPUT DATA !!	Address was not printed to the end.	Make no changes in programming mode when the print job is running!
PIC ERROR VERIFY CONTROLLER	Error in controller module that controls the paper transport.	- Check module PIC 1665. - Set the paper feed mechanism properly.
PIC ERROR VERIFY CONTROLLER		
PIC TIME OUT VERIFY CONTROLLER		
PIC STATUS ANSW. PAPER OUT (PAP)		

Error message	Cause	Solution
PIC CALL PROGRAM ERROR	Error in controller module that controls the paper transport.	– Check the module PIC 1665 – Set the paper feed mechanism correctly.
TIME OUT PIC WAITING FOR PAPER		
PIC CODE PAPER OUT (PAP)		
IBF ERROR VERIFY CONTROLLER		
PIC OBF ERROR PAPER OUT (PAP)		
UART TIMEOUT CALL SERVICE	Error in UART module (serial interface).	Replace CPU board.
DISPLAY TIMEOUT CALL SERVICE	Error in addressing the display	– Check cable connections – Replace display unit.
TIME OUT DC-MOTOR CHECK PROF-PIN	Error in addressing the printhead.	
CHECK CARTRIDGE	Cartridge is not properly inserted.	Insert cartridge (see Sect. 4).

Error messages for soft fonts

Error message	Cause	Solution
FONT LOADING ERROR: TIMEOUT	Error in download font.	Check download font.
FONT LOADING ERROR: HEADER (SB)		
FONT LOADING ERROR: HEADER (F)		
FONT LOADING ERROR: FONT ORIENT		
FONT LOADING ERROR: CHAR. HEADER		

Error message	Cause	Solution
FONT LOADING ERROR: MEMORY (RAM)	Error in loading the font: insufficient memory	Font no longer fits into the memory
FONT LOADING ERROR: CHAR. NO.	Error in download font	Check download font
FONT LOADING ERROR: SUPPL. CHAR.		
FONT LOADING ERROR: CHAR. LasFt		
FONT LOADING ERROR: DATA LasFt		
FONT LOADING ERROR: CHAR. HEIGHT		
FONT LOADING ERROR: DL DISABLED		
MACRO LOADING ERROR: MEMORY (RAM)	Error in loading the macro: insufficient memory	Macro no longer fits in the memory

9. Annex

Page

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8-bit character sets **A.4**

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Ink cartridge and wiper maintenance **F.1**

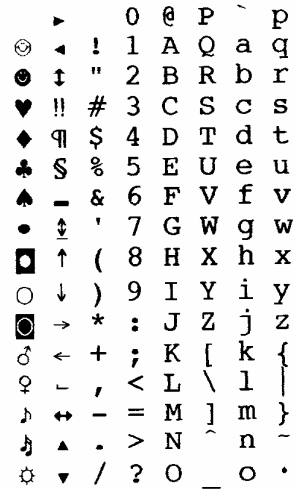
A. Character sets **A.1**

7-bit character sets *A.1*
8-bit character sets *A.4*

A. Character sets

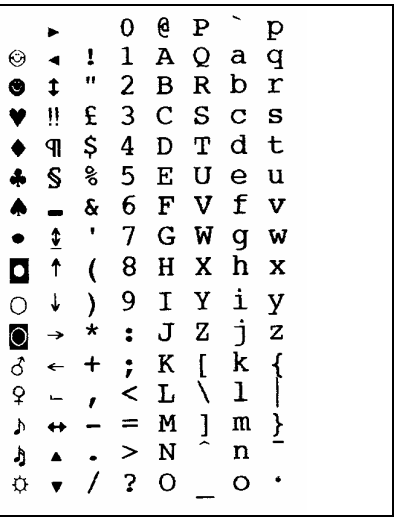
7-bit character sets

ASCII (= USA7)*



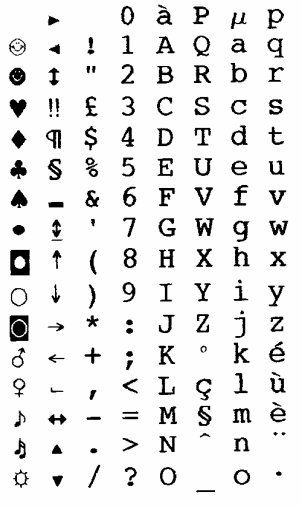
ASCII:	E_c (0 U **
Decimal:	27 40 48 85
Hexadecimal:	1B 28 30 55

England (= UK7)*



ASCII:	E_c (1 E **
Decimal:	27 40 49 69
Hexadecimal:	1B 28 31 45

France (= Fra7)*

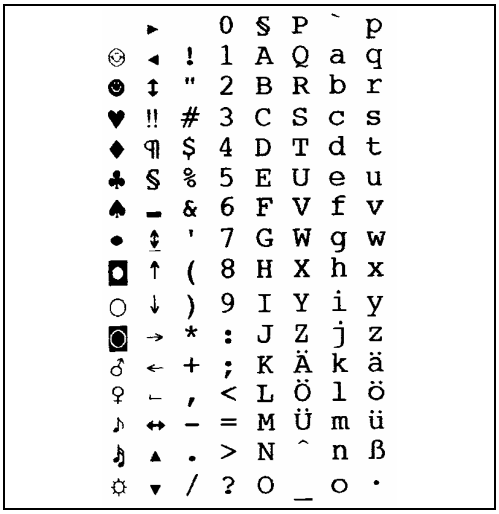


ASCII:	E_c (1 F
Decimal:	27 40 49 70
Hexadecimal:	1B 28 31 46

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

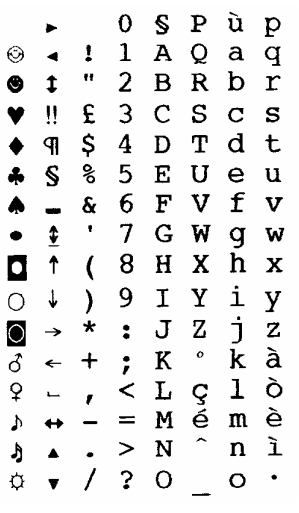
** Use this printer command to call up the character set in your software.

Germany (= Ger7)*



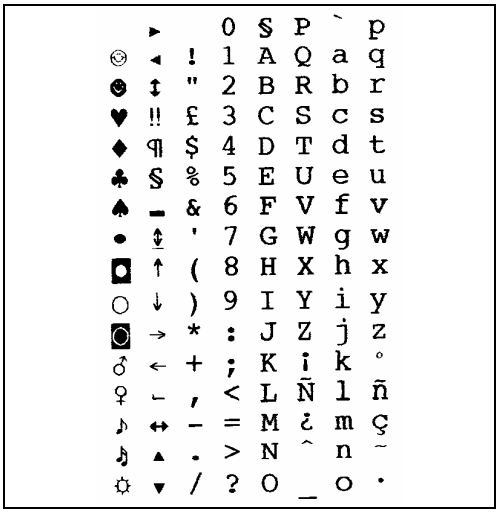
ASCII:	E_c (1 G	**
Decimal:	27 40 49 71	
Hexadecimal:	1B 28 31 47	

Italy (= Ita7)*



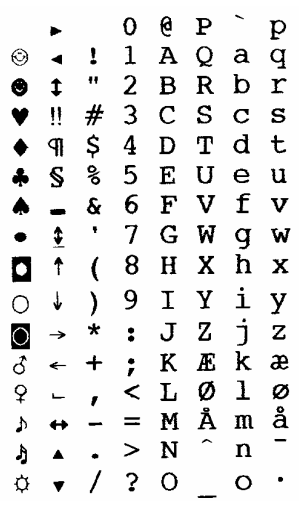
ASCII:	E_c (0 I
Decimal:	27 40 48 73
Hexadecimal:	1B 28 30 49

Spain (= Spa7)*



ASCII:	E_c (2 S
Decimal:	27 40 50 83
Hexadecimal:	1B 28 32 53

Denmark (= Den7)*

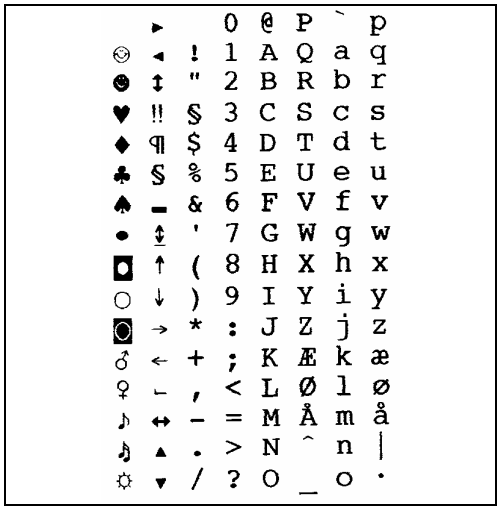


ASCII:	E_c (1 D
Decimal:	27 40 49 68
Hexadecimal:	1B 28 31 44

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

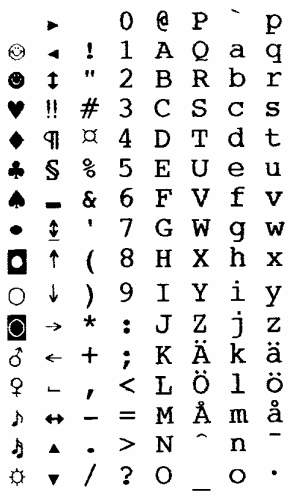
** Use this printer command to call up the character set in your software.

Norway (= Nor7)*



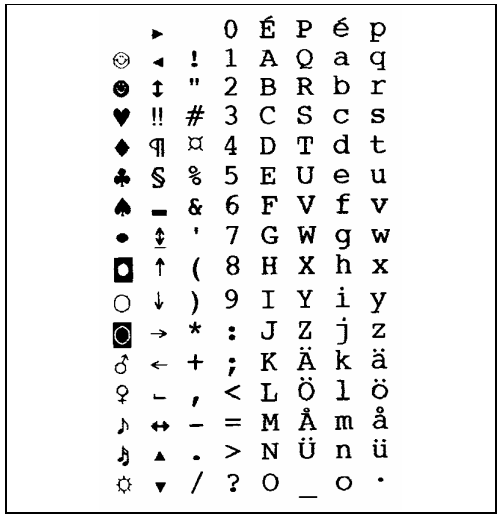
ASCII:	E_c (0 D	**
Decimal:	27 40 48 68	
Hexadecimal:	1B 28 30 44	

Sweden (= Swe7)*



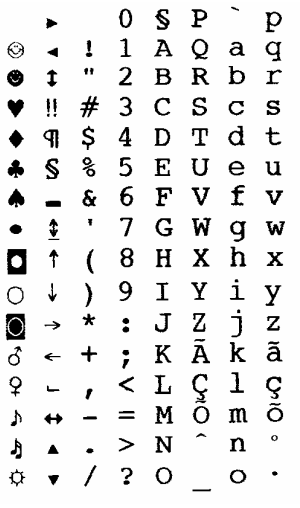
ASCII:	E_c (3 S
Decimal:	27 40 51 83
Hexadecimal:	1B 28 33 53

Sweden/Names (= SwN7)*



ASCII:	E_c (0 S
Decimal:	27 40 48 83
Hexadecimal:	1B 28 30 53

Portugal (= Por7)*



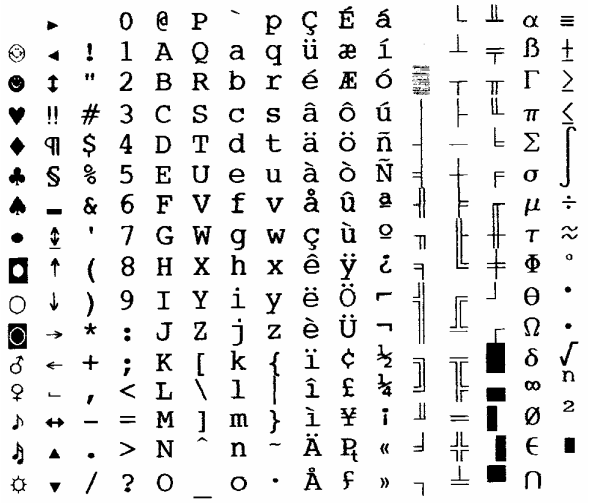
ASCII:	E_c (4 S
Decimal:	27 40 52 83
Hexadecimal:	1B 28 34 53

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

** Use this printer command to call up the character set in your software.

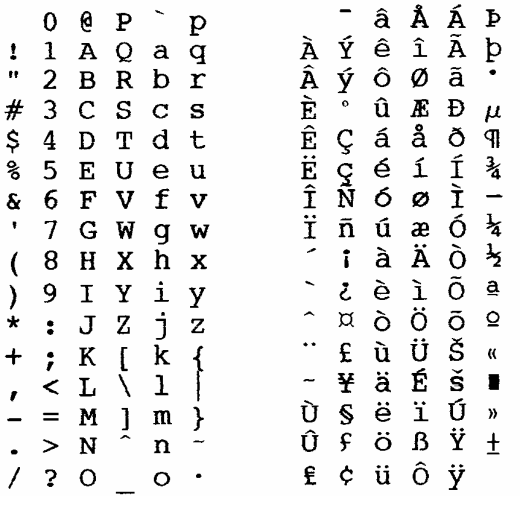
8-bit character sets

PC-8 (= PC8)*



ASCII:	E_c (10 U **
Decimal:	27 40 49 48 85
Hexadecimal:	1B 28 31 30 55

Roman8 (= Rom8)*

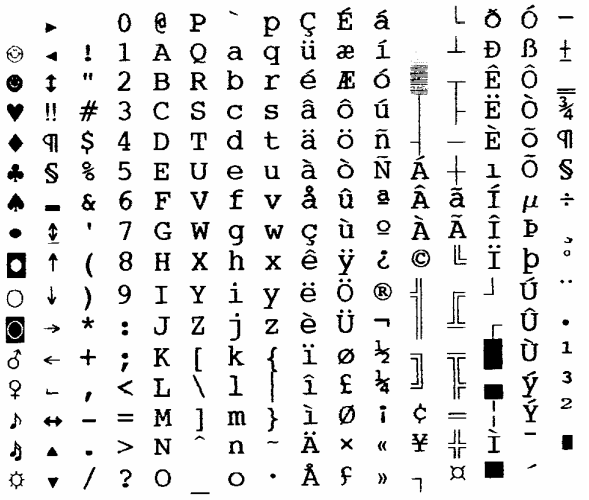


ASCII:	E_c (8 U **
Decimal:	27 40 56 85
Hexadecimal:	1B 28 38 55

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

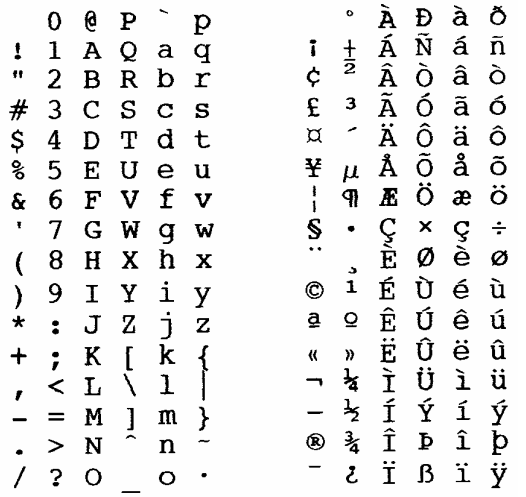
** Use this printer command to call up the character set in your software.

PC-850 (= P850)*



ASCII:	E_c (12 U **
Decimal:	27 40 49 50 85
Hexadecimal:	1B 28 31 32 55

ECMA-94 Latin 18 (= ECMA)*

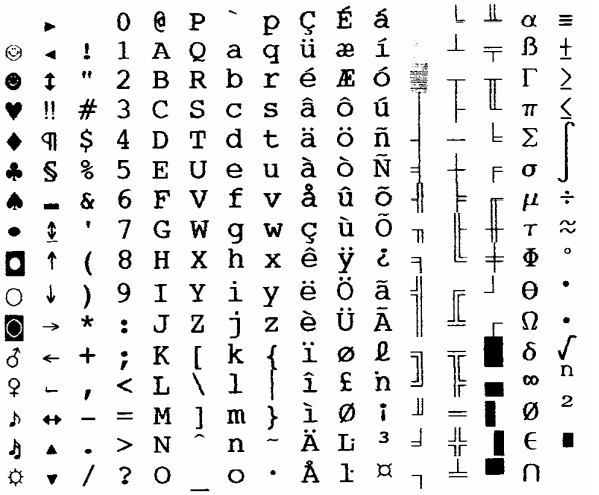


ASCII:	E_c (0 N
Decimal:	27 40 48 78
Hexadecimal:	1B 28 30 4E

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

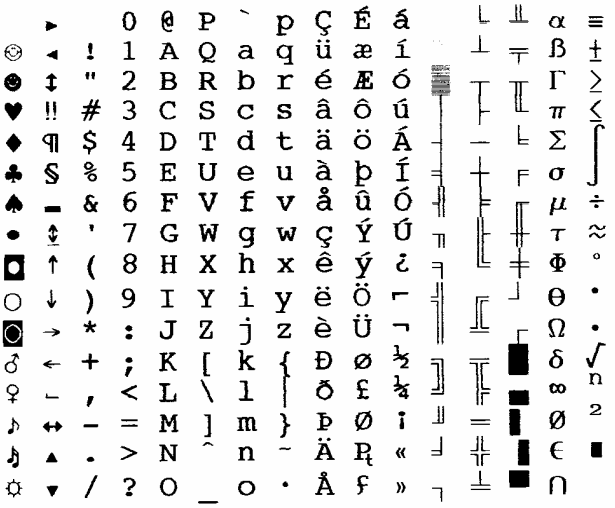
** Use this printer command to call up the character set in your software.

PC-8 Denmark/Norway (= P8DN)*



ASCII:	E_c (11 U **
Decimal:	27 40 49 49 85
Hexadecimal:	1B 28 31 31 55

ICEL (= ICEL)*

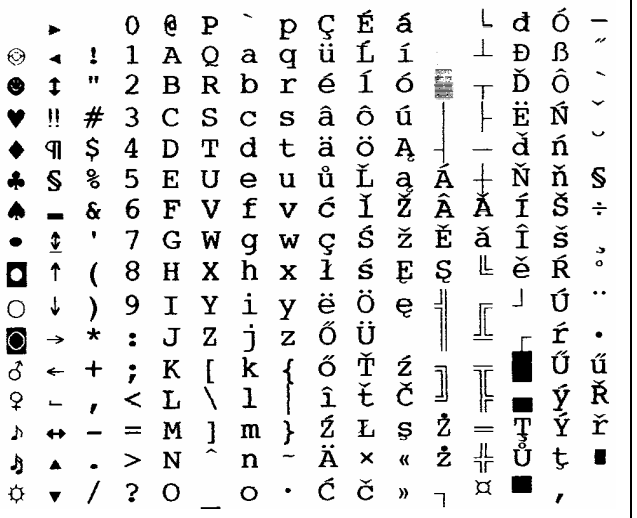


ASCII:	E_c (33 O
Decimal:	27 40 51 51 79
Hexadecimal:	1B 28 33 33 4F

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

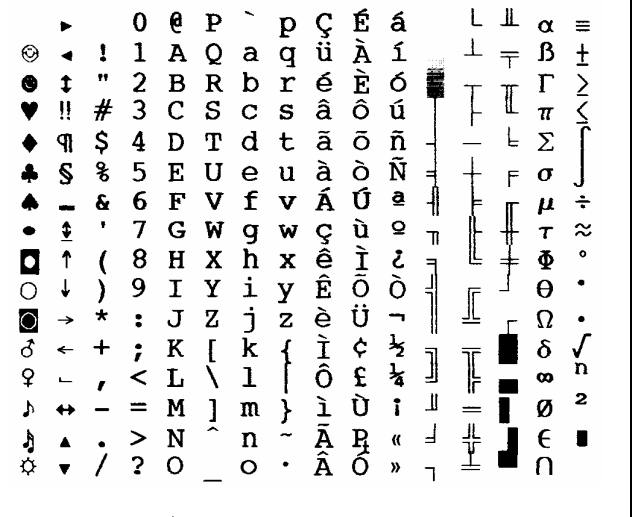
** Use this printer command to call up the character set in your software.

PC-852 (= P852)*



ASCII:	E_C (17 U **
Decimal:	27 40 49 55 85
Hexadecimal:	1B 28 31 37 55

PC-860 (= P860)*



ASCII:	E_C (20 U
Decimal:	27 40 50 48 85
Hexadecimal:	1B 28 32 30 55

* The symbols in parentheses represent the option field names in the DA590 / DA606 / DA608 / DA610

** Use this printer command to call up the character set in your software.

B. Technical data

Dimensions	
L x W x H (mm)	468 x 410 x 365
Weight	24 kg
Paper formats	
Length	75 - 500 mm
Width	70 - 435 mm
Paper thickness	max. 6 mm
Thickness difference	max. 1 mm
Paper types	Single sheets, documents, envelopes, leaflets
Paper quality	Suitable for ink-jet; **no** transparencies or high-gloss paper
Throughput	3 lines at 20 characters per line (on #10 envelope) 13,000/hr at 300 dpi 12,000/hr at 450 dpi 10,000/hr at 600 dpi
Ink cartridge	Black HP51645A, Versatile Black C8842A, Red C6168A, Green C6169A, Blue C6170A, Yellow C6173A
Cartridge operating life	1 million characters (600 dpi) 2 million characters (300 dpi)
Resolution	200D=150x600, 300D=300x300, 400D=300x500, 450D=300x600, 500D=500x500, 550D=500x600, 600D=600x600
Printing mode	Bidirectional Unidirectional Automatically switchable
Print speed	115 characters/second
Print width	90 characters/line at 10 cpi

Special functions	Barcodes - ZIP barcode (Postal barcode USA) - Bpo4 barcode (Postal barcode Great Britain) - 2/5 interleaved barcode - Codabar - Code 39 - Code 128 - EAN8 and EAN13 - KIX barcode (Postal barcode Holland) Configuration memory for 10 settings Test address may be loaded Display of ink consumption Repeat printing of up to the last 20 addresses.	
Receive buffer	90K bytes	
Battery buffer	Printer status (last programming) is retained even after the printer is switched off	
Interfaces		
parallel	Centronics compatible	
serial	RS-232-C, 4800-19K2 baud	
Character sets	Eleven 7-bit character sets Seven 8-bit character sets	
Power connection	100V, 120V, 230V, 240V (switchable) 50 - 60 Hz	Applies only to printers no. 1 – 143 !!
	100V, 120V, 220V, 240V 50 - 60Hz	From printer no. 201 !!
Drive motors	Stepper motor for paper transport DC motor for printhead movement	
Fuses		
Line fuses (AC input)	230,240VAC: 2 x 1.6A (slow-acting) 100,120VAC: 2 x 2.5A (slow-acting)	Applies only to printer no. 1 – 143
Check serial plate!		
Verify fuse rating with serial plate!	100,120VAC: 2 x 2A (slow-acting)	From printer no. 201
Power supply	6.3A (slow-acting)	Applies only to printer no. 1 – 143
Internal electronics	3.15A (slow-acting). Located on dot drive board.	
Noise	< 68 db at 1 m distance (ISO 9296)	
Certifications	GS - characters CE - characters	

C. Glossary

ASCII:

ASCII is the abbreviation for "American Standard Code for Information Interchange". The printer instructions used in this manual are entered in ASCII characters. Decimal or hexadecimal characters may, however, also be used.

Barcode:

Information about a medium is converted into a one-line barcode that is independent of both language and symbols. A barcode is easy to create and can be easily read by simple opto-electronic devices. It is printed on the medium in addition to written information.

Baud rate:

The baud rate is the speed at which data is transmitted between the computer and printer on the serial interface. The computer and printer must have the same baud rate. This can be between 1200 and 9600 baud, depending on the computer used. The baud rate is defined only for a serial interface.

Bit:

Binary digit. As the smallest unit of digital information, a bit can represent only two positions, "1" or "0".

Bitmap:

The bitmap represents a collection of dots in the form of graphics or text in output equipment (printers, monitors).

Buffer:

The buffer is a memory area in the printer. Data destined for input or output is stored there until it is ready for further processing.

Byte:

A memory unit consisting of 8 bits.

Cartridge:

The cartridge contains the ink for printing. When it is used up, the empty cartridge is replaced by a new one.

Characters:

These consist of letters, numbers and symbols that can be printed out.

Character height:

This refers to the height of a printed upper-case character. The dot size is measured in pica points. A point is 1/72 of an inch.

Character sets:

A character set is defined according to the specific application and is usually a collection of letters, numbers, lines and symbols within a font. However, character sets may also consist purely of symbols.

Character spacing:

All fonts have either a constant or a variable character spacing. In a font with constant character spacing, all characters have the same spatial width irrespective of their size. In proportional fonts, the spatial width depends on the width of each respective character.

Configuration:

A configuration allows you to make certain printer settings. You may set up several configurations and save each of them under its own configuration name.

Control code:

See *Printer instructions*

Controls:

The controls comprise the keyboard and the display. They are used to make the internal settings on the printer.

CPI:

Characters Per Inch: This is the unit of measurement for the pitch.

Data transfer:

This refers to the transfer of information between computer and printer.

Default configuration:

The printer is programmed with standard settings prior to delivery. These settings are stored in the configuration "0" and remain active until another configuration number is selected and new settings are made.

Dot size:

The dot size is measured in pica points. One point is 1/72 of an inch.

DPI:

Dots Per Inch: This is the unit of measurement for the resolution. The more dots, the higher the resolution.

Drivers:

See *Printer drivers*

Escape character:

The escape character E_C is always entered before an instruction in ASCll code. This character is not printed, but the printer recognizes the following characters as instruction code.

Escape sequences:

See *Printer instructions*.

Face thickness:

This refers to the width of the character strokes. It can be either regular or bold.

Font:

A font is a collection of characters and symbols of the same font type and spacing, the same size (height), face thickness and style. Fonts may be installed internally in the printer or be loaded externally from font cartridges.

Font cartridges:

These contain fonts that can be loaded into the printer.

Font style:

The font characters can be printed either in regular script or in italics with a constant angle.

Font type:

The font type refers to the design of a character set. Thus Cour has a different design than LetGot or Helv.

Handshake:

The handshake controls the data transfer between computer and printer. It is designed to protect the printer buffer from overflow or data loss.

Hardware:

This term covers the physical parts of your computer system such as the computer itself, the keyboard and the printer.

Installed fonts:

The internal fonts are installed in the printer and are an integral part of it.

Interface cable:

The data transfer cable that links your computer to the printer or another peripheral instrument.

Interface connecting socket:

The DA608 is supplied with two interface sockets, one parallel and one serial. Both are located under the paper feed container next to the power module. The cable connecting your computer and printer is plugged in here.

LPI

Lines Per Inch. This is the unit of measurement for the line density. The most frequent setting for printing is 6 Ipi.

Off-line:

When off-line, the printer cannot receive any data from the computer. In this mode, settings and programming steps are performed on the printer itself.

On-line:

When on-line, the printer can receive data from the computer. The keyboard is then unresponsive except for the "START" key.

Paper detection:

This sensor is necessary for maintaining the top margin value and for stopping the printer in the event of a paper jam. The paper must always pass over the paper detection device.

Paper jam:

A paper jam occurs when the paper gets stuck during printing. Both paper feed and ejection are then blocked.

Paper size:

This refers to the format of the paper that is being printed. When the address block is rotated by 180°, the top margin is automatically modified so that it corresponds to the value set for the normal orientation of the address block.

Parallel interface:

This is a connection between the computer and printer. It is also known as a Centronics interface. The data is always transferred as a single byte (= 8 bits) at a time (in parallel).

Parity:

This is an error detection technique that is run via a serial interface. Errors in the transfer procedure are detected during data transfer. A check is made to ensure the evenness of binary ones in an information unit (e.g. a byte).

PCL instruction:

PCL = Printer Control Language is the HP PCL level III printer language that was developed by Hewlett Packard.

Pitch:

This refers to the number of printed characters contained within an inch.

Print area:

This refers to the maximum range reachable by the cartridge.

Printer driver:

This converts the printer instructions entered via software to instruction codes for the printer. The printer driver must be matched to both the software and the printer.

Printer instruction:

This is entered via the software application in order to make changes in the active printer configuration.

Printhead cradle:

The printhead is attached to a movable cradle.

Printhead mount:

The cartridge is fixed to the printhead mount.

Printhead spacing:

This spacing determines the print intensity. If the spacing is too large, the print will be too faint. If it is too small, the ink can smudge.

Resolution:

A measure of the image definition. It is measured in dots per inch (dpi).

Sans serif font:

A font that has no horizontally running lines (“feet") at the head or foot of a letter. This text is printed in a *sans serif* font, for instance.

Serial interface:

In a serial interface, the data is transferred sequentially (bit by bit) from the computer to the printer. The connection takes place via an RS-232-C socket.

Serif font:

Serifs are the “feet" on Antiqua fonts. The font type Cour is a "Serif" font, for instance.

Setting:

The selection of new configurations.

Soft fonts:

Soft fonts are stored on floppy disk. They can be downloaded to the printer memory.

Software:

Software refers to all operating and graphics programs, as well as the programming or special application packages installed in your computer system.

Stripping blades:

The stripping blades allow a single sheet to be fed from a stack of papers. The sheets lying above the bottom sheet are held down.

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E. Supplement

IMPORTANT!!

When using a Windows® program, with a Rena DA608 driver, or HP DeskJet 500 driver via JetMate, please be sure the printer's menu feature "Setting Locked:" is set to "no". In addition, please be sure that the printer's menu feature "Paper Size:" is correctly set, for the length of the material you are using, and "local locked". See details below.

Use the following procedures to set the Paper Length ("Paper Size:"):

1) **Place material in the hopper, and press the** **key.** The printer will feed one piece of material completely through the transport system, and briefly display the paper length it has measured. This information is displayed in millimeters and inches. Do this procedure a few times (5-6 times) making sure that the printer always measures correctly. On your last attempt, press and hold the key, until the printer displays "(L)". When you release the key the printer will feed, measure and "local lock" the paper size (paper length). "Local locking" keeps Windows® programs from changing the setting.

   Be sure the printer registers the paper length correctly. If the printer displays a length that is more than + or – 4 mm, of the actual material length, check the following:

   a) Make sure the paper is feeding correctly. If the material mis-feeds, the printer will misread the material length.
   b) Check for proper transport pressure. Too much pressure may cause the material to jam and hesitate. Too little pressure may cause the material to slip and hesitate.
   c) Clean the transport rollers with Rena Care, roller cleaner.
   d) Look for dark colors on the underside of the material. Dark colors can cause faulty paper length readings. If you think this is the case, turn the printer's Paper Sensor feature OFF, and than follow procedure # 2.

2) **Use the printer's menu feature "Paper Size:" to manually set the paper length.** By choosing the USER setting, found within the printer's "Paper Size:" function, you can set the Paper Size for the exact length of the material you are using, in 1mm increments.

F. Printer maintenance

Notes on maintenance **F.1**

Proper inkjet cartridge cleaning & storage techniques Including Wiper Maintenance Information **F.1**

F. Printer Maintenance

Notes on maintenance

WARNING! To help avoid personal injury or damage to the equipment; Power the printer off and unplug the power cord from the printer, before performing any maintenance tasks.

Rubber Roller Parts:
Ensure that the rubber contact wheels and rollers are kept clean at all times. The use of Rena Care (rubber roller cleaner) is recommended to clean the rubber roller parts in your printer. Please be sure that Rena Care is not placed on sensors, electronics and plastic parts or damage will result.
Rena Care (part # 2024) can be purchased from your local Rena Dealer.

Paper Sensor:
The paper sensor should be cleaned using compressed air and a soft bristled brush. Do not use liquids to clean the paper sensor or damage may occur. The paper sensor is located just before the print area, centered in the table top. It is a reflective sensor that looks up at the underside of the media (mail piece).

Body of Printer:
The table top and body of printer can be cleaned with a cloth, dampened with water. A mild detergent may also be used.

Proper inkjet cartridge cleaning & storage techniques
Including Wiper Maintenance Information

CARTRIDGE CLEANING

In order to maintain print quality, at its highest level, the Rena DA608 printer automatically cleans the inkjet cartridge nozzles:

- Every time the printer is powered on.
- Every time the printer is placed on-line, from the off-line condition.
- Before every TEST address is printed.
- After every few hundred addresses are printed (user selectable in the DA608).

In some cases it may be necessary to remove and manually clean inkjet cartridges.
In the DA608 printer the Cartridge Purge Feature is also available to help clear inkjet nozzles.

CARTRIDGE PURGE FEATURE:
The printer's "Head Recovery" feature can be used to help un-clog print nozzles. Pressing the START and Back Space (Repeat Address(es)) keys together will cause the printer to do a "Head Recovery".

Manually Cleaning Inkjet Cartridges

To manually clean inkjet cartridges, we recommend using a *Cartridge Wipe* material (Rena part # 2023). This is a high quality, lint free material. We also suggest the use of distilled water in the cleaning process. Please note that the use of "abrasive materials" and water, which has mineral content in it, may cause damage to the ink cartridge nozzles and or clog ink cartridge nozzles.

How to Manually Clean Ink Cartridges:

- Place a drop of distilled water on the edge of the *Cartridge Wipe* cloth.
- Start by placing the nose of the cartridge onto this wet area.
- Using a small amount of downward force, slowly pull the cartridge from the wet area, across the dry area of the *Cartridge Wipe*, while slowly decreasing the amount of downward force.
- Repeat this procedure a few times. Make sure you only clean the cartridge in one direction. Either from the front of the head to the back of the head, or from back to front.

Cartridge Wipes (Rena Part# 2023 = 100 wipes per pack) may be purchased through your local Rena Dealer.

INKJET CARTRIDGE STORAGE

Since the DA608 model has a "built in" cartridge sealing station, there is no need to remove and manually seal cartridges when the DA608 is not in use. Just be sure you give the printer enough time to seal the cartridge (park the print head) before powering it off. If not, the cartridge nozzles will clog and in some cases the cartridge may no longer produce acceptable print quality results.

WIPER MAINTENANCE

To ensure good print quality, the cartridge cleaning lip (wiper) in your Rena printer model DA608 must be manually cleaned on a routine basis. A dirty or worn wiper will clog ink cartridge nozzles. Worn wipers should be replaced by a qualified Rena service person.

To avoid possible injury, wiper cleaning should only be performed while the printer is powered off. It is recommended that wipers be cleaned at the beginning or end of each day of use.

Procedure for Cleaning Wipers

- Turn off power to the printer.
- Carefully slide the print head carriage away from the cartridge cleaning/sealing area.
- Using a *Cartridge Wipe,* lightly moistened with distilled water, clean ink from the wiper and the area surrounding the wiper. You may need to perform this procedure a few times to remove all ink.

  NOTE: Foam tipped swabs may initially be used, to remove excessive ink from the wiper and the area around the wiper. A final cleaning, using a *Cartridge Wipe*, is recommended to insure that any lint, left behind from the swab, is removed. If lint, or other debris, is left on the wiper, the wiper will not perform properly.